GERMAN-CANADIAN CENTRE FOR INNOVATION AND RESEARCH
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COMPANY PROFILES

Matchmaking Mission |November 2019 | Barcelona, Namur, Düsseldorf, Prague, and Vienna

Contents

SENSOR TECHNOLOGY & MACHINE LEARNING

Au-Zone Technologies Inc.

Company representative: Greg Lytle
Technology: Computer Vision, Machine Learning
Location: Calgary, Alberta, Canada
Website: https://www.embeddedml.com/

COMPANY

Au-Zone Technologies is a small team of software and hardware professionals with a passion for developing Machine Learning and Computer Vision technologies for IoT products. Our customers include international tier one semiconductor vendors and OEM product developers who leverage our tools, IP and expertise to deploy highly optimized machine learning based systems. We implement object detection, classification, and signal analysis for a wide range of end applications. This includes driver assist systems, operator monitoring, equipment predictive maintenance and process optimization.

INNOVATION/TECHNOLOGY

Our DeepView™ IOT Solution enables OEM's to add visual intelligence to their products. It supports a highly optimized CNN inference engine that enables machine learning without cloud processing. This is key for applications that require real time performance. The engine supports a wide range of embedded CPU, GPU, and microcontrollers at different power and cost points. Our integrated solution stack delivers a proven platform for rapid prototype and commercial deployment.

The current release of the product is commercially available with active customers. The next release which expand the features, model support and hardware platforms is in active development.

MATCHMAKING OBJECTIVES

Au-Zone Technologies is looking for a European partner company with domain expertise, experience, and leadership in a vertical market which could be significantly impacted or disrupted with the development and deployment of an application specific IoT visual sensor using edge-based machine learning. The end application should have high potential volume or high product margins to justify the custom product development costs.

We see tremendous value working with firms which have a deep understanding of their market needs and technical product fit. Our organization will benefit working with a company that has identified a market need but is interested in a collaboration to develop the product which will solve this problem and bring the solution to market.

PREFERENCES/REQUIREMENTS FOR POTENTIAL PARTNER(S)

A partner company would be active in the design; development and marketing products which include a high degree of technical innovation. The firm should have an established sales and support infrastructure capable of launching and supporting a new product line in the European market. Access to field data relevant for the specific application for training deep learning models is a requirement. An ideal partner will have some experience with data science in a research environment that is looking for a technical collaborator with practical experience and IP to enable cost effective commercial smart visual sensor deployment.

Nanoprecise Sci Corp.

Company representative: Sunil Vedula
Technology: Sensors, Machine Learning, Artificial Intelligence, Predictive Maintenance, Manufacturing, Rotating Devices, Smart Devices, Data Science
Location: Edmonton, Alberta, Canada
Website: https://www.nanoprecisesc.com/

COMPANY

Nanoprecise has created a "unique" patent-pending solution (hardware + software) that combines physics, material science, and data analytics to diagnose issues with physical assets such as machinery and predicts the "Remaining Time to Failure."

Our sensor is far superior in terms of specs than anything similar available in the market. Our sensor extracts RPM, vibration, sound, temperature & humidity information, all from one sensor. Our software (which is built on AI algorithms that are only limited to research papers until now) analyzes the data from various sensing elements and achieved anomaly detection, fault characterization & remaining useful life prediction.

Our solution can be deployed cost effectively and utilized on the ~70% of machinery that is not monitored today because it has not been economically viable, until now.

Since we were founded in Jan 2018, we have started working with customers spanning across the Oil & Gas, Mining, Utilities, HVAC & Infrastructure sectors.

INNOVATION/TECHNOLOGY

Nanoprecise Sci Corp has created a predictive maintenance solution which comprises hardware and software. A seamless IoT network architecture is established at the site using Cell Boosters & Cellular Routers. In terms of hardware, Nanoprecise has developed a sensor which extracts RPM, vibration, sound, temperature & humidity information. The wireless sensor measures vibration up to 16000 samples/sec, acoustic emission up to 80,000 samples/sec, and connects to the internet within 5 minutes after installation. The sensors battery life lasts 1 to 3 years, depending on the update frequency. Some edge computing is performed directly in our sensor, which enables instantaneous anomaly detection. Further sensor data is transmitted to Nanoprecise's Cloud where our software uses complex machine learning algorithms to detect faults or failures in rotating machineries. Our fault characterization algorithm detects bearings, shaft, gears vanes and other structural faults with more than 95% accuracy. The information is presented to the end-user through a user-friendly dashboard on a real-time basis.

Currently, our company is in the implementation phase where we have successfully implemented the technology with ground-breaking results.

MATCHMAKING OBJECTIVES

- Participate in the B2B meetings with selected top tier European enterprises.
- Meet and establish relationships with key firms in the industrial applications of AI and IoT sectors.
- Develop partnerships and potential R&D projects for potential future co-innovation.
- To partner with the system integrators, OEMs or distributors, so as to complement their offering with our niche solution for machine predictive maintenance
- To partner with a large end user who can use our technology on a multitude of assets that they already own
- Explore the feasibility of unique case studies that are theoretically possible with our technology
- By attending this mission, Nanoprecise hopes to foster R&D collaborations and business relationships with

EU technology firms in the AI and IoT sectors including key global customers and end-users, and

PREFERENCES/REQUIREMENTS FOR POTENTIAL PARTNER(S)

- It would be great if the joint technology partner has labs or sample equipment to test our technology on and validate
- Companies that have access to large data sets for rotating equipment performance
- Companies that have proven experience in the development of IOT devices and machine learning

PANVION Technology Corp.

Company representative: Tomislav Milinusic
Technology: Optical Sensors
Location: Edmonton, Alberta, Canada
Website: http://panvion.com/

COMPANY

For the past seventeen years Panvion has specialized in designing and creating advanced optical sensors specifically for high-altitude wide-coverage airborne applications such as search and rescue, precision agriculture and surveillance. The custom designed systems span from the ultraviolet to the far thermal infrared spectral regions and include hyperspectral and polarization sensors. Onboard fast target detection is achieved by convolution neural network algorithms and hardware.

Amongst the sensors developed are for powerline inspection from helicopters; multispectral precision agriculture for wide-area coverage, and hyperspectral imaging for a number of applications from food security to medical imaging. Panvion's activities now are focused on commercializing its many years of research and development in these areas.

INNOVATION/TECHNOLOGY

Panvion currently has a unique real-time visible light hyperspectral scanning imager that rivals most in terms of performance, resolution and cost. It is unique in that it uses a whisk-broom approach and very high-speed cameras with Fabry-Perot etalon concepts. The imager is at the demonstration level, with software to create hypercube from the scanner. Currently it is being tested in a high-altitude airborne application in agriculture, and later this year for oil slick detection, and maritime search and rescue. The hyperspectral imaging scanner covers an extensive list of potential application possibilities. The focus that Panvion would like to work with the European partners is for commercialization that involves mainly software development in two areas (other area can be considered):

1. Real-time diagnostic non-invasive medical applications specifically in endoscopy and surgery
2. Industrial scale greenhouses phenotyping to continuously monitor and protect crop from disease

MATCHMAKING OBJECTIVES

The objective for participating is to identify one or more joint technology partners that are interested in using this unique and powerful hyperspectral scanning sensor once both companies have jointly developed appropriate solutions for the market in question, and – or for jointly pursue exploiting the imagery for a number of commercial opportunities in which to enhance the hardware and create new application software. The benefits to the participating company are several, a substantial advantage in having a proven demonstrable risk-free solution in

hyperspectral imaging not available elsewhere, i.e. time to market is shorter. What is needed mainly are the specific customer software to be developed with some customization for the hardware. This is a powerful incentive to get into an important future technology without the large entry cost and risks.

PREFERENCES/REQUIREMENTS FOR POTENTIAL PARTNER(S)

Hyperspectral imaging is a new field and the R&D partner should preferably be one that does not have the technology tool set, specifically the hardware portion which is unique to Panvion. The partner ideally should be already working and marketing in an area that could use hyperspectral classification in real-time being a key advantage of the system. Also, the partner should have a strong scientific remote sensing know-how principally in software development and mathematical solutions and methods. Preference is for any sized company that wants to enter this new area. Knowledge of AI and deep learning would be ideal, as some aspects of the solution involves deep learning for targets of interest.

Partners, knowledgeable in any one or more of these fields would be of benefit: precision agriculture, medical optical instrumentation, remote sensing, food inspection, forestry, mineral exploration, hyperspectral software development, optical instrument design and manufacturing for scientific and commercial uses.

Stream Technologies Inc.

Company representative: John Murphy
Technology: Analytics/Machine Learning
Location: Edmonton, Alberta, Canada
Website: https://streamtechinc.com/

COMPANY

At Stream our value is to provide highly accurate and timely machine learning predictions to industry. Our data science team has developed advanced neural nets designed to leverage both spatial and spectral data. We also provide tools that enable non data scientists to build prediction models, without the need of knowledge or experience with machine learning.
Models that are developed are automatically hosted for distribution and use. In addition, we provide a marketplace to support instant commercialization of new models world-wide.

Our executive management team has over 60 years of combined technology commercialization experience. We are a staff of 10 people. We have worked successfully with German SME's in the past.

INNOVATION/TECHNOLOGY

Stream is an analytics company that specializes in machine learning and spectroscopy to change the way detection is done in the world. We analyze images from cell phones to scans from spectrometers. Detect the presence of a disease, fungus, or predict a specific value like the percentage of protein in barley, nutrients, or pesticide residue, as possible examples. This applies to quality control in food processing or any other number of targets. This eliminates the need to wait for test results coming back from the lab. The idea is to have no need to rely on an expert inspector – now anyone can take a picture / scan and view the results instantly. It's also 10X cheaper. Our platform enables non data scientists with samples to build their own custom analytics models, simply by taking pictures and pushing the 'train' button.

We specialize in allowing developers, with limited knowledge or experience in Machine Learning to automatically build Machine Learning Models from images and scanned data. This includes color cameras, multispectral cameras and spectrometers, as we manage 1000's of spectral bands - and more importantly the combination of both spatial

and spectral data, at the same time. Our deep learning neural nets have been optimized to return highly accurate predictions from this type of data. A simple API call returns the prediction values, to be embedded directly into an application.

We have released version 1.0 of our analytics platform. There are limited algorithms or models that have been build, as the platform is new. We may need to do some 'hand holding' as this automated process is new.

MATCHMAKING OBJECTIVES

Stream is looking to expand our reach and use of our analytics engine into the greenhouse sector and are specifically looking for partners that could work with us to develop detection application(s) for this sector. This could include various types of crops, and we are looking for companies that could help us with the ability to get cameras moved efficiently around a facility, so as to be able to image an entire crop canopy.

While Stream is working with some greenhouse operators in Canada, we are looking to partner with companies who provide the ground truth data for various disease or other targets that are valuable throughout Europe.

The partners we are looking for – have a relationship with end user customers or their business model is such that they provide solutions to this market. Once we work together to develop a series of algorithms, Streams business model is to provide ongoing predictions to the reseller or developer (our Partner) and or other resellers. In other words, our ideal partners would be providing a report or maps or notification systems to the end user. Stream is responsible for providing predictive results through an API.

Ideal Partners might also be able to provide or source: 1) those who can effectively provide training data (hundreds of images of diseased plants -for example), for our analytics engine, 2) those that can provide a novel way to move imaging systems (cameras) throughout a greenhouse. Our current approach is a mobile gantry, rather expensive and cumbersome. We have limited experience in the optical challenges of working in a greenhouse environment long term.

The win for Stream is - we start to prove out our prediction engine / platform, we advance our understanding and market awareness of other greenhouse applications (beyond Cannabis). We establish a recurring revenue business model for both partners.

We have a clean way to manage IP, the models / algorithms that get built can be jointly owned and are based on unique training data and protected within our platform. We could expand our product to incorporate the billing and royalty tracking for European currencies. Final software applications can be owned solely by the Partner, as Stream is only interested in monetizing predictions.

PREFERENCES/REQUIREMENTS FOR POTENTIAL PARTNER(S)

We are looking for experts that would know the type of crops that are of value, the disease or targets of value and the way that ground truth data is collected. They would be able to determine if the new algorithms we jointly developed would be able to outperform the current method used in the industry.

It would be even better if they had access to parts of the market that would be willing to test our new system.

We are interested in knowing if soil is used in greenhouses in Europe and if so, if there are companies that have experience in soil management and soil detection - access to a wet chemistry lab would be fantastic.

Stream is also interested in companies that are doing the same type of activities but NOT in a greenhouse - Precision Agriculture. I think Precision Agriculture using Machine learning is still in its infancy - especially in Canada.

Potential partners should understand that the technical uncertainly in using this level of analytics with spectral data, has some risk.

TransRail Innovation Group (TRIG)

Company representative: Robert Tasker
Technology: Industrial Internet of Things (IIoT), ICT, Clean Tech
Location: Calgary, Alberta, Canada
Website: https://www.transrailinnovation.ca/

COMPANY

TRIG is a sensor manufacturer and IIoT (Industrial Internet of Things) service provider.

TRIG's products and services are focused on the rail industry. In particular, TRIG provides sensors and services that improve the efficiency and safety of transporting hazardous goods in rail tank cars. TRIG provides visibility from the inside out.

TRIG is uniquely certified (the only electronics manufacturer in North America) to build/assemble sensors that measure inside a rail tank car.

INNOVATION/TECHNOLOGY

TRIG's products include:

- TLoad Sensor – 80 GHz radar sensor - measures the fill inside a tank car during transloading to optimize the fill without opening the tank car.
- XLoad Sensor – 25 GHz radar sensor - monitors the level and status of a tank car in transit (allows operators to optimize tank car fleet utilization)
- Multi-Protocol Gateway - enables communication between devices (LoRa, Wi-Fi, Bluetooth, LTE, Satellite, Zigbee)
- Load Planner (in development) - software tool that can optimize load planning and execution
- Fleet Capacity Management (in development) - software tool to optimize the availability and use of fleet tank car capacity

TRIG Technology Expertise includes:

- RADAR and electro-magnetics
- Wireless protocols (cellular, satellite, GPS, Bluetooth, LoRa, etc.)
- Electronics manufacture with HAZLOC certifications
- Firmware
- Software
- Artificial Intelligence (e.g. Robotic Process Automation)

MATCHMAKING OBJECTIVES

TRIG is seeking relationships to pursue three primary objectives:

1. To support the development of the next generation XLoad 5.0
2. To find potential IIoT software platform technology partners to that can support rail logistics
3. To understand the certifications required to build, test, and deploy new disruptive technology for the European rail industry

PREFERENCES/REQUIREMENTS FOR POTENTIAL PARTNER(S)

1. To support the development of the next generation XLoad 5.0
    a. Technical parameters for XLoad 5.0 :
        i. 80 GHz Level Probing Free Space Radar ii. IoT Enabled
            1. modular wireless protocol
            2. battery powered
        ii. Engineered and certified for mounting to rail pressure tank cars
            1. HAZLOC Zone 0/1
            2. Flange seal to 500 psi
            3. Embedded VRV functionality

    b. Technology Expertise sought:
        i. Electromagnetics (80 GHz engineering and testing) ii. Wireless communications (specific to European infrastructure) iii. Low power engineering iv. HAZLOC engineering
        ii. v. Mechanical design for rail fittings

2. To find potential IIoT software platform technology partners that can support rail logistics
    a. Partner has existing IIoT software platform to support transportation logistics
    b. Partner interested to invest in global rail logistics opportunity

3. To understand the certifications required to build, test, and deploy new disruptive technology for the
4. European rail industry
    a. Specific requirements to allow mounting devices on rail tank cars that penetrate the encasement
    b. HAZLOC Zone 0/1 and Wireless certifications

INFORMATION TECHNOLOGY, AI & MACHINE LEARNING

FORMVERSE Inc.

Company representative: Kirk Deininger, Arthur Gniazdowski
Technology: Information Technology – Data Integration, Artificial Intelligence, Process Automation
Location: Calgary, Alberta, Canada
Website: https://formverse.com/

COMPANY

FORMVERSE released its first Beta product in Q4 of 2014 with the idea that Enterprises around the world had “way too many point solutions”. They saw that the future of software was allowing every employee to create applications without the need for any coding experience. With their experience in FinTech and other enterprise Medical & Software companies, the founders reacted to the problem of companies having too many applications. This was true across all industries. In 2016 FORMVERSE relocated to Calgary bringing on CTO Arthur Gniazdowski, and together

acquired FedEx as their first of many enterprise customers. The company now boasts of clients that includes Siemens, Texas Instruments, Arconic, Tupperware, Terex, Thermo Fisher Scientific and several other Fortune 500 companies as well as US state and local governments.

FORMVERSE Enterprise Automation Platform is a "No-Code" Rapid Application Development Platform that combines Enterprise quality Intelligent Process Automation (IPA) technology with a Hybrid Integration Platform (PASSPORT) and AI (Stealth Project "Native Tongue" set for release Q4 2019).

FORMVERSE EAP & PASSPORT fill an unmet need in the Enterprise Software space, overcoming challenges of A) traditional BPA/BPM tools which are difficult to use for end users and require dedicated developers, B) RPA tools that automate low value/repetitive human tasks and C) issues where existing "low/no-code" platforms can be difficult/time consuming and lack Enterprise level functionality.

INNOVATION/TECHNOLOGY

FORMVERSE is our Enterprise Automation and Intelligent Integration platform. Customers can quickly create configurable no-code applications, automate any process, store all associated data/metadata/attachments in a database for reporting/BI and bi-directionally integrate data in order to **connect all of their disparate legacy** and cloud apps, even IoT/manufacturing equipment. Different tech companies are talking about connecting the cloud applications (we do that), but enterprise clients have big legacy systems that they need to connect with as well. We do both, because that's what the enterprise needs!

FORMVERSE Enterprise Automation Platform (EAP) has two patents granted around our "Active Structured Email" technology which gives customers the ability to interact with FV Apps directly within their existing email system (Outlook, O365, OWA, Gmail/Gsuites). Our technology can leverage customers' existing infrastructure technology (Exchange, SQL Server, Active Directory, IIS etc.) that they have invested in and "sweat the assets". This approach creates an extremely high user adoption rate and a big ROI on the purchase.

FORMVERSE PASSPORT is a Hybrid iPaaS solution that bidirectionally integrates data, applications, and processes. Customers can deploy integrations (cloud or on-premise) between any of our customers' Enterprise applications or databases. This gives customers the ability to centralize data from many disparate systems into extremely easy to use FV Apps, saving time, money and end user frustration associated with learning complicated Enterprise systems (ERP, CRM, HRIS, Finance, Document Management, etc.).

Our AI technology (**FORMVERSE Conceptual Workflow Processor** or CWP) will take this platform to the next level! By using our contextual engine, we can identify the key concepts from incoming emails, voicemails & documents, and automatically initiate the appropriate workflows for action/resolution. Our customers are have been asking for this capability and we'll be delivering later this year.

MATCHMAKING OBJECTIVES

We are looking for a development partner who can help us in two area:

1. Utilizing our AI technology in the extraction of German, French & Spanish language text
2. Development of applications for the German market utilizing the FORMVERSE EAP, PASSPORT & CWP platforms

PREFERENCES/REQUIREMENTS FOR POTENTIAL PARTNER(S)

We would look for this partner to have the following qualities/capabilities:

- A deep understanding of and ability to support the Microsoft Platform
- A deep understanding of requirements regarding General Data Protection Regulation (GDPR) Compliance
- Subject matter experts in the development of performance/process improvement applications in large enterprises (FORMVERSE EAP & PASSPORT)

- Strong understanding of languages & language contexts spoken in European countries including: Germany, France, Spain and Belgium. (FORMVERSE Contextual Workflow Processor)

We would also look for this partner to have the ability to provide some marketing support for the various European markets if required.

NTWIST

Company representative: Chowdary Meenavilli
Technology: Artificial Intelligence and Industrial Process Optimization
Location: Edmonton, Alberta, Canada
Website: https://www.ntwist.com/

COMPANY

Due to information overload and knowledge gap in control rooms, operators are unable to respond quickly to profit draining variations in process flows costing US Petrochemical Industry alone Approx. US $ 20 Billion yearly. Today, companies use many manual tools and multiple groups (Operations, Process and Reliability) are involved in solving issues with process improvement.

We are an artificial intelligence (AI) company building industrial process improvement platform to save industrial facilities millions of dollars through revolutionary process decision management.

We enable high performance in industrial facilities by integrating facility control systems with artificial intelligence to drive throughput, reduce costs and maximize profit.

Our techniques are interdisciplinary spanning through chemical engineering, control engineering, mechanical, physics, mathematics and computer science fields. We are able to do this using the latest in cutting edge Artificial Intelligence and industry & research experience of the team. The leadership team that is involved in developing the solution are:

Ding Li, PhD in Computer Engineering and Artificial Intelligence, U of A
Ilya Perederiy, PhD in Chemical Engineering, U of T
Siddardah Varma, (PhD) in Bioinformatics and Artificial Intelligence, IIIT-H Bardia
Hassanzadeh, PhD in Chemical Engineering (Process and Control), U of A.

INNOVATION/TECHNOLOGY

NTWIST exclusive extractors / drivers allow connecting any SCADA / DCS provider and collecting data from source. NTWIST plug and play AI integrated platform is being offered as On-Premise (within the client firewall) or as SaaS (Cloud), and provide reports through mobile or web. Our initial implementation in Oil & Gas and Mining industries are able to achieve 5-35% improvements in profit in the form of improved throughput, reduced chemical usage or energy consumption and improved product quality.

MATCHMAKING OBJECTIVES

We are looking to co-develop an industrial research of AI modes that can improve performance of equipment or a process along with remote monitoring capabilities. Also, we are looking for partners that can leverage existing research.

PREFERENCES/REQUIREMENTS FOR POTENTIAL PARTNER(S)

We are looking to partner with Chemicals or equipment manufactures that will be used in process industry such as Oil&Gas, Refinery, Mining, Paper&Pulp, Petrochemicals etc.

For us to research & develop AI modes we require support from partners with:

1) Access to data
2) Subject matter expertise in Industry they operate in

Routeique Inc.

Company representative: Mike Allan, Jodie Allan
Technology: Information Technology, Logistics & Supply Chain Software/Hardware Platform
Location: Calgary, Alberta, Canada
Website: https://www.routeique.com/en

COMPANY

At Routeique, we make Supply Chains, seamless. Our software and hardware platform connect all the parties in traditional supply chains, from multi-national manufacturers, to distribution, warehousing and transportation firms, to national retail chains to allow each of the parties to behave as a single unit, from the data and product flow perspective. By seamlessly moving data, we can lower costs, decrease errors and omissions, save labour, time and the environment, all while creating better experiences for customers up-and-down the chain. Our platform consists of several components, including our two mobile apps (DMS for drivers, IMS for Inventory/Warehouse Personnel), an administrative console for distributors and transportation firms, an enterprise customer order portal for customers and an IoT-based Vehicle Brain that manages and monitors vehicle performance across the network. We work with some of the largest food service manufacturers in the world, as well as some of the world's largest food service retailers, and everyone in between.

INNOVATION/TECHNOLOGY

The Routeique platform has been in market for two years and is currently in use with some of the world's largest food service companies. That being said, we are constantly developing new components, features and functionality as part of our R&D Roadmap, including the use of AI/ML technologies, IoT and Sensors, Blockchain, computer visualization, as well as alternative interfaces such as voice and Augmented Reality. We design and develop both software and hardware and we're constantly looking to innovate in both areas. Routeique has a team of 28 full-time professionals and we have a lot to offer prospective partners in terms of expertise, more so on the software side, but in terms of hardware development as well.

MATCHMAKING OBJECTIVES

We are currently partnered with two German companies (Fraunhofer SCAI and MotionMiners) to build collaborative solutions for our clients around enhanced route optimization for vehicles as well as warehouse optimization using IoT wearables from MotionMiners. We are looking for other partnerships similar to this one, where all parties contribute complimentary knowledge, skills and technologies, in order to build a collaborative solution that's greater than the sum of the individual parts.

PREFERENCES/REQUIREMENTS FOR POTENTIAL PARTNER(S)

We are seeking like-minded companies who have some experience in the space, a desire to collaborate with international partners and a desire to build cutting-edge technology solutions as part of a partner network. It helps greatly if the potential partners have extensive supply chain experience and exposure, but this is not a requirement if the technologies are complimentary. It also benefits greatly if the partners have access to prospective clients and markets in their respective countries, which helps with global market entry and friendly referrals between countries.

We are looking for senior leaders at any of the above-mentioned technology companies (start-ups or larger), such as AI/Machine Learning, IoT and Sensors, Augmented Reality, Voice Interfaces, Robotics and Blockchain. We are also interested in companies within the supply chain space who would like to collaborate on technology solutions such as those offered by Routeique. Manufacturers, distribution firms, transportation firms and retailers (particularly food service retailers) who have an innovation mindset are always welcomed for discussion.

RunWithIt Synthetics (RWI)

Company representative: Myrna Bittner, Dean Bittner
Technology: Synthetic Intelligence
Location: Edmonton, Alberta, Canada
Website: https://rwisynthetics.com/

COMPANY

Founded in 2014, RUNWITHIT Synthetics (RWI) is pioneering the creation and application of Synthetic Intelligence (SI) Environments- supplying insight into the emergent behaviour of complex, high-value systems operating under any conceivable conditions and future scenarios. In order to gain implementation efficiencies, and validate economic ripple effects, these environments provide a data rich environment for trialing the specific effectiveness of combinations of technologies and processes, architecting innovative solutions, and exploring dynamic, adaptive system responses, including optimizing responses to unpredictable events.

INNOVATION/TECHNOLOGY

RWI's SI Environments are "in silico" "in situ" worlds - complete, realistic, controllable, at-scale worlds that replicate everything systems will face when they are live (people, activity, behaviours, technologies, connections, new integrations or configurations, environmental/physical conditions, time and context). Based on all different types of data, physical principles, and behavioural research, the AI-driven Synthetics then bring the world to life, producing data about every possible outcome.

Everything required to assess what is going to happen becomes visible, and everything that hasn't happened yet can be experienced. Any emergent behaviour that cannot be captured through mathematical modelling or predictive systems based on historical data, is exposed. The realism of the RWI SI Environments provides strategic certainty for decision making and iterative development for any complex system.

Implementations of RWI's technology have been commercialized in verticals including transportation, global media, satellite, IoT, IIoT and Synthetic Cities that connect all of these elements with disaster planning and response.

MATCHMAKING OBJECTIVES

European technology companies, researchers and cities are pursuing and implementing some of the great advances in Smart City technology that address the future of transportation, carbon, security, economics, and the environment. We are interested in working with partners to both extending the modelling capacity of our Synthetic City to demonstrate the effectiveness of these innovations, and also to promote insight into these advances and integrations to Cities around the world as we build city specific environments to respond to complex issues.

While we have deep expertise in creating complex models, we are looking for partners with specific domain expertise. Domain expertise may consist of research, data or technologies around any of the layers of a smart city, from their citizens to their environment. If this trip is successful in generating partner interest and connections, we would look forward to applying for the Alberta-Europe Technology Collaboration Fund to assist in the development of both data science, technology and market.

PREFERENCES/REQUIREMENTS FOR POTENTIAL PARTNER(S)

We are looking for interested parties to both contribute and consume Synthetic Cities. These may fall into three categories:

1) researchers (generating research and models i.e. socio-economic impact) or companies (producing sensors and smart city solutions) and organizations who collect data (i.e. from monitoring) who would be interested in partnerships to contribute and develop a market for bringing their data or technologies to life in sophisticated scenarios that include data and model layers from other partner parties.

2) we are also looking for Smart City market partners - strategic partners who are interested in participating in Synthetic Cities to provide insight into their city's complex issues with carbon, water, weather, pollution, traffic, security, technology, etc.

3) we currently visualize our geospatial data in data dashboards, and 2D (an aerial view on a map). We would like to enhance this with visualization technology that could visualize our millions of live synthetic entities in more dimensions geospatially, potentially including realism from specific city topography, and dimensional aspects of bridges, roadways and buildings.

SPLICE Software Inc.

Company representative: Tara Kelly and Karolina Congdon
Technology: Information Technology, Telecommunications, InsureTech, FinTech, Customer Communications
Location: Calgary, Alberta, Canada
Website: https://www.splicesoftware.com/

COMPANY

SPLICE Software is committed to creating world-class customer engagement solutions. We focus on three main areas of expertise:

- Consent Management: Consumer privacy and express consent are table stakes. We help companies take it to the next level by offering and tracking customer's preferred channels. We also manage opt-ins, customer preferences, and make customer opt-in and preference capture part of every conversation.
- Data-Driven Dialogs® & Conversations: SPLICE's solutions allow companies to start meaningful conversations with the data they have. We create automated messages and workflows, which can turn into conversations that drive engagement. Channels include: phone, SMS, Email, Voice First Devices and Chat.
- Intelligent Reporting: SPLICE provides each client with actionable reports that allow them to continually enhance their communication engagement programs. We help them track consent, channel engagement, preferences, and effectiveness to consistently improve their top and bottom line.

SPLICE's voice-based Data-Driven Dialogs® use real-time data in concert with live-recorded talent, to deliver timely Voice, and Home-Assistant based messaging. Our Dialog Builder™ currently uses pre-recorded, linguisticallyoptimized message segments that are spliced together for the most human sounding, customized, messaging - tailored to a company's brand.

INNOVATION/TECHNOLOGY

Our current challenge is to provide a high volume of personalized messages and conversations with authentic business value for specific applications. We currently set up these campaigns manually and create a specific dial plan per client and per use case. SPLICE currently also manages all the audio work for these specific campaigns.

It was within these constraints that SPLICE is hoping to develop a solution called SynthIA™ that maintains the natural and desirable characteristics of the human voice along with a virtually unlimited diversity of potential voices, wrapped within an enterprise-level content management and workflow management system. This solution will provide an integrated system for deploying SPLICE's high-quality human voice-based audio capabilities across multiple channels and devices including Voice First Devices (e.g. Amazon Alexa and Google Home), Inbound and Outbound PBX, chatbots and virtual agents, as well as SMS and email channels. In addition, we hope this solution will become a licensable platform where developers and vendors can add value for their own clients and endcustomers.

MATCHMAKING OBJECTIVES

This project aims to replace our current operations platform and is meant to be more of a self-serve platform – with the option for SPLICE to provide consulting and account management services at an additional fee. Participating in this matchmaking mission will help us find a partner that will not only aid in the development of this new system, but also to gain quality contacts and build out network within the European market.

The update to SPLICE's existing Dialog Suite™ will be a fully integrated system (SynthIA™) that supports SPLICE's core business of proactive human voice-based customer communications. Organizations will be able to create, store and manage audio files for voice-first channels and provides an intuitive workflow to deploy customized speech on a scheduled and on-demand basis and also provide conversational chat. This platform will use a significant amount of AI within the chat functionality and voice naturalization to humanize the automated voice. Users will be able to test synthesized voice audio, measure interactions that are tagged for all possible content, and create an intelligent voice file library.

These innovations will provide easily scalable audio outputs superior to those available in the market today, & will be key in exploiting new industry verticals, licensing opportunities, and markets. Ultimately, SynthIA™ and the Dialog Suite™ will deliver intelligent audio & conversations with the same simplicity that current marketing automation platforms like Marketo or Adobe bring to visual digital deployment.

PREFERENCES/REQUIREMENTS FOR POTENTIAL PARTNER(S)

SPLICE is looking for a partner that will aid in not only the development of our platform but also with export into the European market.

Our ideal partner would have experience with customer communication channels including:

- Voice First Devices (e.g. Amazon Alexa and Google Home)
- Inbound and Outbound PBX
- Conversational platforms (ex. chatbots and virtual agents)
- SMS & MMS messaging

As SPLICE's solution will require some level of AI to be running in the background, companies with experience in AI development will be beneficial as well.

Tangent Design Engineering Ltd.

Company representative: Chris Parker
Technology: Information Technology
Location: Calgary, Alberta, Canada
Website: https://www.tangentservices.com/

COMPANY

Tangent Design Engineering is an ISO 9001 and ISO 13485 product development firm that specializes in design and commercialization of new technologies for the medical device, consumer goods, IOT, industrial, and oil and gas markets. Tangent also reserves 10% of revenue to perform internal R&D aimed at developing our own products suitable for spin out. Over the past two years, Tangent has developed a novel mesh networking technology for wide area data acquisition targeting applications in electrical energy metering, solar panel monitoring, and wide area data acquisition applications (agriculture, environmental sensing, machine health).

Tangent has a strong core engineering team with 30 design engineers over a number of disciplines including electronical and electronics engineering, mechanical engineering, simulations and analysis, and machine learning/AI. Our focus on new product development over the last two years has been on wireless mesh networking, where we have become very proficient at developing solutions for the 6LoWPAN family of wireless standards. Our strengths include product design, full stack firmware development, wireless security, and communication systems design.

INNOVATION/TECHNOLOGY

Our company is developing a wide area data acquisition system focused on data acquisition and control for large monitoring areas. This system is enabled in an expandable compact module which allows for the addition of custom sensor boards as required and high-speed processors for advanced analytics and machine learning applications. The technology is currently at a technology demonstration phase for our core technologies, with some advanced features and functionality in the proof of concept stage. We currently have small networks (up to 10 nodes) deployed locally and developing the technology to scale our product innovation to much larger network sizes 50k+ nodes. We are currently aiming at having the technology ready for small scale unsupervised pilots in Q4 of 2019.

Currently, we are exploring opportunities in smart agriculture, urban/rural electricity and water monitoring, and conditional monitoring of utility scale solar operations (>5 MW). We have identified and secured pilot opportunities for water monitoring and electricity monitoring in North America and India.

MATCHMAKING OBJECTIVES

We are seeking collaborating companies in the electrical energy sector, agricultural sector, or environmental sensing sector who require data acquisition and artificial intelligence at the edge. Our next step is to perform a large field trial to demonstrate scale, but we have not found a suitable partner for this demonstration yet. We would also be interested in identifying research and development capabilities in mesh networking that we may be able to leverage in our research and development program.

Ideally, a European partner company would either be a company with a need to remotely monitor and control assets in an area that traditionally has difficult telecommunications access, or establishing a robust communications infrastructure using traditional technologies is difficult, costly, or impractical.

Alternately, a European partner company would be an expert in mesh networking and be able to offer insights and guidance on the scalability of our design. This partner would be a valuable collaborator we could use as we move into pilot phases potentially in Europe.

We have several project ideas and potential collaboration projects. Our top applied research projects would be: Distributed firmware update method over lossy networks: distributing firmware images effectively over lossy networks is problematic. We would like to develop a suitable algorithm for the most efficient method of distributing medium size file images over mesh networks.

Link layer key exchange distribution and method over lossy networks: currently, the state-of-the-art security for 6LoWPAN includes a pre-shared link layer key to encrypt traffic within the network. Effectively changing the link layer key in a way that does not completely disrupt network operations would be an innovation that would dramatically improve our system reliability and security.

Distributed payment transactions over a lossy network: distributing payment options over blockchain using our mesh network would enable a whole new commercial class of applications. We currently have no expertise in this area and would require a partner that was willing to work with us on a completely decentralized hardware and software approach to payment sharing.

PREFERENCES/REQUIREMENTS FOR POTENTIAL PARTNER(S)

We would be looking for a European partner with data analytics capabilities, wireless security capabilities, wireless mesh networking capabilities, or other wireless firmware capabilities. We would also prefer a partner with some expertise in the Web application/IOT platform space (software). We have little depth in this area of expertise.

HEALTH TECHNOLOGIES

48Hour Discovery Inc.

Company representative: Dr. Ratmir Derda and David Alton
Technology: Biotechnology
Location: Edmonton, Alberta, Canada
Website: http://48hourdiscovery.com/

COMPANY

Founded in 2017, 48Hour Discovery Inc. is a biotechnology company specializing in peptide derived therapeutics and drug discovery for global health care companies. Its novel, patented serum and GI-stable peptide macrocycles enable discovery collaborations (service agreements), annual subscriptions of services and non-exclusive technology transfer partnerships (licensing agreements) with leading pharmaceutical companies and research institutions. It also partners with a consortium of US based life sciences companies to provide a set of proprietary reagents for a personalized cancer tumour assessment service, which is expected to be launched in late 2019.

INNOVATION/TECHNOLOGY

48HD's advanced discovery platform is based on proprietary linkers, billion scale genetic encoded libraries, a streamlined workflow and open-access data management. 48HD's platform enables the rapid identification of highly effective hit candidates, which exhibit excellent selectivity and gastrointestinal stability for oral delivery.

MATCHMAKING OBJECTIVES

48HD participated in this mission in 2018 and found partners in Germany to apply for an Alberta-Europe Technology Collaboration Project (results pending). 48HD is participating again this year to search for additional partners that have drug discovery related technologies such as protein scaffolds, macrocycle technologies, or other posttranslational modifications and for companies or research institutes conducting clinical trials with a focus on precision medicine.

PREFERENCES/REQUIREMENTS FOR POTENTIAL PARTNER(S)

We are looking for partners with expertise in:

-drug discovery

-protein chemistry

-drug candidate validation assays

-clinical trials

Hermay Labs Corp.

Company representative: John Junzhi Yao and Can Tu
Technology: Health, Clean Technololgy
Location: Edmonton, Alberta, Canada
Website: www.hermaylabs.com

COMPANY

Hermay Labs Corp. is a high-tech research organization located in Edmonton, Alberta, Canada, dedicated to conducting high quality research and development. The founding members of this company have strong entrepreneurship backgrounds and decades of experience in medicinal chemistry, chemistry research and process development. We are interested in drug discovery and formulation, cosmetic products, environmental protection products and environmentally friendly products.

INNOVATION/TECHNOLOGY

Hermay Labs Corp. has developed a range of tyrosinase-targeted agents that offer potential cosmetic modulation of skin depigmentation and chemotherapy of advanced melanoma. Skin pigmentation control and melanoma chemotherapy are serious goals for people in all walks of life. Cosmetically affected individuals suffering from exposure to occupational or recreational exposure sunlight including sun-tanning; or experiencing drug-induced hyperpigmentation, look to the cosmetic industry for help, largely because the pharmaceutical industry has not championed scientifically proven remedies. Similarly, the lack and ineffectiveness of melanoma-targeted drugs leave chemotherapy as a last, and usually futile, attempt for advanced-stage melanoma treatment. Hermay Labs Corp. has developed a series of compounds that represent a new opportunity to interrupt skin hyperpigmentation and modulate melanoma growth at a major biomolecular level.

MATCHMAKING OBJECTIVES

The objective of this matchmaking trip is to try to find a partner who will help us with our Melanoma project. We have developed a group of lead compounds and are looking for partners who can help test the in vitro activities of these compounds and then conduct further optimization.

PREFERENCES/REQUIREMENTS FOR POTENTIAL PARTNER(S)

The ideal partner may be a biologically oriented company interested in new drug discovery and development. Companies interested in new cosmetic products are also potential partners. We are also interested in partnering with companies who are looking to develop environmental protection and/or environmentally friendly products.

Biological testing and formulation experience are the two major assets we are looking for in our search for partners. In addition, we are in a position to offer our expertise in the synthesis of custom chemicals. Potential European partners would include those looking for assistance in a range of skills in process development, small to medium scale synthesis workup and the synthesis of fine chemicals for the drug, cosmetic and environmental industries.

MATERIAL SCIENCE

Preciseley Microtechnology Corp.

Company representative: Tiansheng Zhou
Technology: Information Technology, Nanotechnology, Health, etc.
Location: Edmonton, Alberta, Canada
Website: https://www.preciseley.com/

COMPANY

Preciseley is a fabless MEMS technology company. It is the leading global supplier of optical MEMS mirror and mirror chips for fiber optic telecommunication as Optical Variable Attenuator, Optical Switches, and Optical Filters. Based on its over 20 awarded EU, JP and USA patents, Preciseley has developed MEMS for 3D Sensing (Face ID Senor/Module), MEMS portable/miniature NIR FTIR spectrometer for pharmaceutical industry, process control and precision agriculture., and a MEMS Scanning module for LIDAR which can be used for Robot vision and autonomous vehicle etc.

INNOVATION/TECHNOLOGY

Based on its over 20 awarded EU, JP and USA patents, Preciseley has developed: 1)
MEMS Optical Variable Attenuator, Optical Switches, and Optical Filters.
2) MEMS for 3D Sensing (next generation of IPhone Face ID Senor/Module;
3) MEMS portable/miniature NIR FTIR spectrometer for pharmaceutical industry, process control and precision agriculture;
4) MEMS laser scanning module for LIDAR which can be used for Robot vision and autonomous vehicle etc;

MATCHMAKING OBJECTIVES

Preciseley is looking for the partners for:
1) Using its MEMS optical mirror and mirror array chips for their instruments or modules;

2) To develop MEMS 3D Sensing (Face ID) modules for;
3) To develop MEMS laser scanning module for LIDAR (Light detection and Ranging) which can be used for Robot vision and autonomous vehicle etc.
4) To develop MEMS portable/miniature NIR FTIR spectrometer for pharmaceutical industry, process control and precision agriculture.

PREFERENCES/REQUIREMENTS FOR POTENTIAL PARTNER(S)

1) Fiber optic telecommunication Module and equipment manufactures to make MEMS VOA, Switch and filter;
2) Laser based Instruments and equipment manufactures for products such as Tuneable light source, Image displayer; HUD, laser marking etc.
3) Medical Instrument and equipment manufacturers for OCT/Optical Coherent Tomography, Endoscope; Dental 3D Digital Imaging;
4) Smart Phone face ID and 3D sensor manufactures
5) Near Infrared (NIR) Spectrometer manufactures;
6) Autonomous Car and LIDAR (Light detection and Ranging) manufactures;