Patryk Laurent, Ph.D.

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Technical leader of Data Science/AI/Machine Learning and Software Engineering across domains including Internet-of-Things (IoT), smarthomes, robotics and software, reporting to the VP Engineering, CTO, or CEO. Always seeking to accelerate teams in solving hard problems.

Key Skills

- Hands-on approach to technology leadership, evaluating and adopting new technologies
- Rapid prototyping and iteratation to shorten feedback cycles between Product and Engineering
- Establishing data/ML pipelines, identifying and adopting appropriate business-driven solutions

Positions held

2023-present ***Chief Scientific Officer*, Scenera, Inc.** (San Diego, CA & Palo Alto, CA).

- Directing data management and data science efforts for video, IoT and time-series analytics.
- Leading engineering efforts on edge device software and data lake/warehousing systems.
- Delivering processes to manage big data and large numbers of custom ML models.
- Aligning AI and infrastructure research to business requirements, accelerating return on investment.

2022-present ***Principal*, Lighthill Technologies, Inc.** (San Diego, CA).

- Serving as fractional CTO or chief data scientist for startups in a consulting/advising capacity.

2018-2022 ***Director of Emerging Technologies*, DMGT, plc.** (San Diego, CA & London, England).

- Created a Center of Excellent for data scientists across portfolio companies, injecting knowledge and best practice, leading to significant value multipliers.
- Rapidly evaluated key ML and software technologies to accelerate transformation and development.
- Established automated pipelines to accelerate stakeholder-to-data scientist development cycles.
- Implemented ML models to demonstrate value of business data and to improve operations.
- Implemented systems to bundle technology as SKUs with minimal Engineering involvement.

...2020 (6-month assignment) **DMGT: *Architect in Residence, Trepp, LLC.***. (San Diego, CA & New York, NY).

- Identified new data science product opportunities leveraging Trepp's AWS-based data lake.
- Implemented proofs-of-concept on numerical and textual datasets in commercial real estate (CRE) and mortgage-backed securities (CMBS) [TensorFlow/Transformers].

...2019 (11-month assignment) **DMGT: *Director, Data Intelligence, Genscape, Inc.***. (San Diego, CA, Louisville, KY, Boston, MA).

- Led 12+ data scientists developing models to nowcast energy consumption, production, demand.
- Built models using data from EMF sensors, satellite images, weather data, video feeds [TensorFlow].
- Productionized models in collaboration with software engineering and devops teams.

2017-2018 ***Director of Artificial Intelligence Initiatives*, CliniComp, Intl.** (San Diego, CA).

- Applied ML to classify and forecast dynamical, multi-scale temporal and spatial clinical data.
- Grew and managed a team of 5 data scientists and data engineers.
- Liased between data science, software engineering, and product domain experts.

2017 ***Co-founder and CTO*, Lasso Home, Inc.** (San Diego and Mountain View, CA).

- Built mobile app leveraging computer vision to track, maintain home appliances [iOS, NodeJS].

2017-present ***Advisor*, Accel Robotics** (San Diego, CA).

- Advising on topics in computer vision and AI/ML for autonomous retail systems.

2016-2017 ***Director of Engineering (AI)*, LeEco US** (San Diego, CA & Beijing, China).

- Built computer vision/ML apps across an Android ecosystem of devices [TensorFlow, OpenCV].
- Designed novel UI/UX to recognize naturalistic user behaviors, and minimize false positives.

2012-2016 (promoted) ***Senior Scientist/Director of R&D*, Brain Corporation** (San Diego, CA).

- Managed a team of 8+ scientists/engineers at various levels (Ph.D., M.Sc.).
- Documented, packaged, and deployed a commercially-available robotics software framework.
- Co-designed and investigated a novel state-of-the-art ML architecture that learned to robustly track objects in continuous video (DARPA-funded) [Python].
- Implemented a projector-and-camera vision-based gestural, ML prototype (for a Fortune 500).
- Designed and implemented an iOS gamepad-based smartphone user interface for supervised learning in robots incl' Brain Corporation's *eyeRover* technology showcase robot [iOS, Python].
- Developed a Smarthome ML prototype to remotely control off-the-shelf IoT devices and robots in response to visual cues and gestures (over WiFi and infrared) using Qualcomm hardware.

2009-2012 ***Researcher,* Department of Psychological and Brain Sciences, The Johns Hopkins University** (Baltimore, MD).

- Used Reinforcement Learning to investigate visual attention focus and human decision making, using neuroimaging (fMRI) and behavioral methods [AFNI].
- Analyzed recurrent spiking neural networks as a mechanism for reward discounting functions.
- Provided technical support and advice to multiple fMRI and big data projects at Johns Hopkins.

2003-2009 ***Researcher*, Center for Neuroscience, University of Pittsburgh (CNUP) and Center for the Neural Basis of Cognition (CNBC)** (Pittsburgh, PA).

- Simulated Reinforcement Learning (RL) agents that learned to control their saccadic eye movements and visual attention during reading and survival tasks [Java].
- Studied RL of motor and cognitive activity in human brain areas using fMRI [AFNI].
- Developed real-time sound/echo cancellation technique to hear fMRI participants [ChucK].
- Studied recurrent neural networks for continuous speech perception.

2002-2003 ***Software Developer*, Super Natural Tools, Inc.** (Roanoke, VA)

- Co-wrote and deployed a streaming communications and data analysis system [Java].
- Adopted agile development and extreme programming techniques.

2000-2002 ***Co-founder and CTO*, Inductive Logic, Inc.** (Darden Business Incubator) (Charlottesville, VA)

- Developed natural language processing sentiment analysis software for online forums [Perl].

1997-2000 ***Software Developer*, ScholarOne, Inc.** (acquired by Reuters (Charlottesville, VA)

- Co-developed ManuscriptCentral and AbstractCentral online publishing systems [PHP].

1997-2000 ***Researcher*, Laboratory of Systems Neurodynamics, University of Virginia** (Charlottesville).

- Researched the capabilities of sparse recurrent spiking neural networks as models of hippocampal function in memory, sequence learning, and language processing [C, MATLAB].

Education

• **Ph.D.**, Computational Cognitive Neuroscience, Center for Neuroscience, University of Pittsburgh.
• **Certificate Program**, Center for the Neural Basis of Cognition, University of Pittsburgh & Carnegie Mellon Univ.
• **B.A.**, Cognitive Sciences (minor in Mathematics), University of Virginia. Echols Scholar, Holland Scholar.

Publications and Patents

• Named inventor on 35 patents • Author on 36 scientific publications (two of which are single-author)

Technology Stacks

• **Machine Learning**: TensorFlow/Keras, PyTorch, scikit-learn, custom • **MLOps**: Github Actions, MLFlow, Databricks • **Version Control**: (code) — git (preferred), subversion; gerrit; (data) — Delta Lake • **CI/CD**: Github Actions, Jenkins, CircleCI • **Embedded**: Arduino, ARM • **IDE**: vim, VS Code, IntelliJ • **Cloud Providers**: GCP, Azure, AWS, LambdaLabs • **Programming**: Python, Scala, Java, C, Objective-C, NodeJS, Assembly.