Patryk Laurent, Ph.D.

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Technical leader of Data Science/ML and Software Engineering for early and growth stage companies reporting to the VP Engineering, CTO, or CEO across domains including IoT, smarthomes, robotics and software. Forger of collaboration between product and engineering. Always seeking to accelerate teams in solving hard problems.

Key Skills

- Hands-on approach to technology leadership, evaluating and adopting new technologies
- Writing code and specs to rapidly prototype and iterate, linking product and engineering orgs
- Leveraging or designing new machine learning algorithms, and establishing data/ML pipelines
- Managing and collaborating with Ph.D.-level scientists, aligning R&D focus to business goals

Positions held

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

- Leading a diverse team of engineers across 3 continents (US, Europe, Asia).
- Driving AI topology management initiatives with ML Ops to balance Edge versus Cloud AI.
- Directing data management and data science efforts for multimodal analytics (video and IoT).

2022-2023 ***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).

- Led data scientists across DMGT's portfolio companies, injecting knowledge and best practice.
- 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 authorization systems enabling sales and product organizations to bundle new SKUs with minimal involvement of the technology organization [NodeJS].

...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 physiological data from hospital beds [PyTorch].
- 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).

- Build computer vision/ML apps on 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 Jobs/Tasks • **Version Control**: (code) — git (preferred), subversion; gerrit; (data) — Delta Lake • **CI/CD**: Github Actions, Jenkins, CircleCI • **Embedded**: Arduino, ARM • **IDE**: vim, Visual Studio

Code, IntelliJ • **Cloud Providers**: GCP, Azure, AWS, LambdaLabs • **Programming**: Python, NodeJS, Java, Scala, Objective-C, Assembly • **Typesetting/Text**: LaTeX, Pandoc