KATARZYNA KOZDON

Delft, Netherlands
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I am proficient in developing machine learning applications that align with product objectives and user needs. I enjoy navigating hardware and business constraints. Track record of effectively guiding interdisciplinary teams. Additionally, I possess a strong background in biomedical sciences.

EDUCATION

PhD Artificial Intelligence - University College London, 2015-2022

- Developed a Spiking Neural Network and evolutionary algorithm optimisation for time-series data processing in C.
- Completed courses: Bio-Business; Systems Training in Maths, Informatics and Computational Biology (distinction).
- Published four research papers and presented at ten conferences and symposia.
- Technologies: C, Python, R, Bash, LaTeX (OverLeaf), unsupervised learning, weakly supervised learning.

MSc Neuroscience - University College London, 2011-2012

BSc Pharmacology & Molecular Genetics - King's College London, 2007-2010

PROFESSIONAL EXPERIENCE

Staff Neuromorphic Engineer & Program Manager- Innatera Nanosystems B.V.

APRIL 2022 - PRESENT, Rijswijk, Netherlands

- Led Algorithms team through growth from three to eight engineers with Junior to Staff levels. Reported to VP of Engineering.
- Developed and implemented processes for recruitment, project delivery and inter-team collaborations.
- Defined quarterly roadmaps and team members' development plans.
- Oversaw patent filing processes and provided supervision throughout.
- Product owner for embedded live radar demos for events like CES and Embedded World.
- Technologies: Python, PyTorch, DVC, GitLab, Signal Processing, Data Science, tinyML, edge AI, sensors, neuromorphic SoC.

Honorary Lecturer - University College London

MARCH 2022 - PRESENT, London, UK

- Member of the teaching team for the Intelligent Systems module.
- Examples of topics covered: explainable AI, reinforcement learning, Bayesian network, heuristic optimisation.

Staff Neuromorphic Engineer- Innatera Nanosystems B.V.

MAY 2021 - APRIL 2022, Rijswijk, Netherlands

- Project Manager and lead developer of Spiking Neural Network ML pipelines for radar-based applications deployed on a mixed signal neuromorphic chip.
- Led Algorithms team of four Senior Engineers; designed deliverables for other teams, including Firmware, Hardware and SDK.

- Led characterisation of a neuromorphic chip, which resulted in unlocking a €2.5M investment round.

Senior Neuromorphic Engineer- Innatera Nanosystems B.V.

SEPTEMBER 2020 - APRIL 2021, Rijswijk, Netherlands

- Contributed to requirements modelling for a design of a mixed signal neuromorphic chip.
- Supervised a Masters student in Computer Engineering at Delft University of Technology. Thesis mark 9/10.

Data Scientist (Volunteer)- COVID Alliance (now Center For New Data)

MAY 2020 - SEPTEMBER 2020, Chicago, Illinois (remote)

- Contributed to cleaning, analysis and visualisation of nation-wide U.S.A. mobile phone location data.
- Developed a model describing travel patterns of different human populations for selected counties.
- Technologies: SQL, Snowflake, Pachyderm (pipeline automation & data version control)

AI R&D Scientist - TheAIWorks Inc

FEBRUARY 2020 - SEPTEMBER 2020, London, UK

- Led product discovery and development for a simulator of employee interactions, employing agent-based modelling, genetic algorithms and swarm intelligence.
- Implemented features and constraints based on customer requirements.
- Secured a Letter of Intent from a leading consultancy firm within the Big Five.
- Technologies: Python, Django, Docker, MySQL.

Data Scientist - Braintree Ltd

MARCH 2018 - JULY 2018, London, UK

- Cleaned and analysed (clustering, decision trees) data on sales, promotional activities and communication with tens of millions of customers over several years.
- Developed and tested Machine Learning solutions (Neural Networks, SVMs) for a client.
- Provided written reports and data visualisation for weekly meetings with the client's Data Science team and a quarterly report for the client's senior management team.
- Designed and implemented quality assurance guidelines for a Data Science division with eight members of staff.
- Technologies: Python, MySQL, Scikit-learn, NumPy, Pandas, LaTeX (OverLeaf), AWS, unsupervised and supervised learning.

Teaching Assistant- University College London

JANUARY 2017 - MARCH 2022, London, UK

- Won a Postgraduate Teaching Assistant Award based on student nominations and faculty feedback.
- Led tutorials on AI and Machine Learning theory and practice (Scikit-learn, Tensorflow) and programming (C, Python) for undergraduate and postgraduate students in five modules.
- Developed teaching materials (slides, Python tutorials) and assessments; provided feedback to the students.
- Technologies: C, Python, Scikit-learn, Pandas, NumPy, TensorFlow.

Bioinformatician (PhD rotation project) - Queen Mary University London

FEBRUARY 2016 - JULY 2016, London, UK

- Developed software for high-throughput analysis of genomic data.
- Designed experiments and collected genomic data.
- Technologies: C++, Bash.

Data Scientist (PhD rotation project) - University College London

OCTOBER 2015 - FEBRUARY 2016, London, UK

- Developed a simulation of neuronal growth using the CX3D framework in Java.
- Liaised with laboratory researchers regarding the model's requirements.
- Technologies: Java, Fiji/ImageJ, agent-based modelling.

Research Technician - University College London, Institute of Ophthalmology

MAY 2013 - OCTOBER 2015, London, UK

- Developed a novel 3D in vitro model of artificial tissue.
- Taught and supervised six lab members (including PhD students and medical doctors).
- Produced data that led to two successful grant applications and two research papers.
- Managed laboratory supplies and grants.

SELECTED PUBLICATIONS

- Kozdon K. and Bentley P. J. "Architectural plasticity in spiking neural networks." The Conference on Artificial Life, 2020
- Kozdon K. et al. "A Tenon's capsule/bulbar conjunctiva interface biomimetic to model fibrosis and local drug delivery." PloS One, 2020
- Kozdon K. and Bentley P. J. "Normalisation of weights and firing rates in spiking neural networks with spike timing-dependent plasticity." The Developmental Neural Networks Workshop, The Conference on Artificial Life, 2019
- Kozdon K. and Bentley P. J. "The evolution of training parameters for spiking neural networks with Hebbian learning." The Conference on Artificial Life, 2018
- Kozdon K. and Bentley P. J. "Wide Learning: using an ensemble of biologically-plausible spiking neural networks for unsupervised parallel classification of spatio-temporal patterns." The IEEE Symposium Series on Computational Intelligence, 2017
- Kozdon K. et al. "Mesenchymal Stem Cell–Like Properties of Orbital Fibroblasts in Graves' Orbitopathy." Investigative Ophthalmology & Visual Science, 2017

AFFILIATIONS AND AWARDS

- **Program Committee Member** - The International Conference on Artificial Life, 2022 - present
  Review of conference submissions.
- **Board Member** - The Emergent Researchers in Artificial Life Society, 2019 - 2021
- **Finalist Prize** - The London Hopper Colloquium 2018
  Organised by the British Computer Society and University College London.
- **Doctoral Advisor** - iGEM competition 2016
  Co-supervised a gold-winning team of ten University College London undergraduate and master students during the International Genetically Engineered Machine competition (iGEM) organised by MIT.