Daniel Lengyel

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Education

Imperial College London, *Computer Science, PhD* *Expected Fall 2023*, London, UK
Topics: Derivative free & distributed optimization, optimal data for function approximation, particle methods.

UC Berkeley, *Applied Math, BA; Computer Science, BA; Major GPAs: 3.92/4.0* *May 2019*, Berkeley, CA, USA

Experience

RISELab at UC Berkeley, *Research Assistant* *Berkeley, CA, USA*, Fall 2017–Fall 2019
- Developed an HVAC control algorithm that minimizes energy use while maximizing the comfort of occupants for the XBOS-DR project.
- Deployed and tested the method successfully across commercial buildings in California.

Salzburg Research, *Control and IoT Intern* *Salzburg, AT*, Summer 2017
- Created a self-driving slot-car from scratch. Full details on github.

Mint AI, *Data Scientist* *Vienna, AT*, Summer 2017
- Developed and implemented a recommender system based on user's value-investing beliefs and risk tolerance.

VRVis, *Virtual Reality and Graphics Intern* *Vienna, AT*, Summer 2016
- Developed and implemented a realistic real-time simulation of fire in a closed room. The simulation was used for a virtual reality fire extinguishing project intended for the training of office workers and firefighters.

Leadership and Teaching

Imperial College Business School, *Graduate Teaching Assistant* *London, UK*, Spring 2022–
Master's Courses: Mathematics for Finance (Fall 22), Computational Finance with C++ (Spring 22).

Imperial College London, Computing, *Graduate Teaching Assistant* *London, UK*, Fall 2019–
Master's Courses: Computational Finance (Fall 21, 22), Computational Optimisation (Spring 20, 21, 22), Mathematics for Machine Learning (Fall 20), Deep RL (Fall 19). **Bachelor's Courses**: Graphics (Spring 22), Computational Techniques: Linear Algebra and Differential Equations (Spring 19).

Quantum Computing at Berkeley, *Founder and President* *Berkeley, CA, USA*, Fall 2017-Spring 2019
- Established and taught "Intro to Quantum Computing" (DeCal).
- Won the best newcomers prize at Rigetti's QC Hackathon for our implementation of a Quantum SVM.
- Awarded the Student Technology Fund of over $\$15,000$.

BERC Undergraduate, *President* *Berkeley, CA, USA*, Fall 2017-Spring 2019
- Reinvigorated the undergraduate branch of BERC; a thriving community on campus with the goal to find, develop and support interests within energy and resources.

Technical Skills

Languages: Python, Java, C++, C, C#, Go, Javascript. **Frameworks**: Spark, Hadoop, CUDA, gRPC. **Libraries**: Jax, Tensorflow, PyTorch, OpenGL, WebGL, OpenCV, OpenAI, Pandas, NumPy, scikit-learn.

Publications

Peer Reviewed Papers

- **D. Lengyel**, J. Petangoda, I. Falk, K. Highnam, M. Lazarou, A. Kolbeinsson, M. Peter Deisenroth, N. R. Jennings. GENNI: Visualising the Geometry of Equivalences for Neural Network Identifiability, NeurIPS Differential Geometry meets Deep Learning workshop, 2020.
- G. Fierro, M. Pritoni, M. AbdelBaky, **D. Lengyel**, J. Leyden, A Prakash, P. Gupta, P Raftery, T. Peffer, G. Thomson, D. E. Culler. Mortar: an open testbed for portable building analytics, ACM Transactions on Sensor Networks, 2019.
- A. A. Panagopoulos, M. Katsigiannis, M. Pritoni, G. Fierro, **D. Lengyel**, T. Peffer, G. Chalkiadakis, D. E. Culler. Dealing with Expected Thermal Discomfort, ACEEE Summer Study on Energy Efficiency in Buildings, 2018.

Submitted and Current Work

- **D. Lengyel**, A. Borovykh. Efficient regression with deep neural networks: how many datapoints do we need?, October 2022 (Submitted).
- **D. Lengyel**, P. Parpas, N. R. Jennings. Fine estimation of gradients using coarse models: efficient computation of optimal sample points for the simplex gradient under local curvature information, Invited talk at ICCOPT and to be submitted November 2022.