Kunal Ghosh

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EDUCATION

• DeepIBayes Summer School
Moscow, Aug 2019.

• Machine Learning Summer School
Madrid, Aug 2018.

• Master's in Computer Science
Major: Machine Learning and Data Mining
Minor: Mathematics
Aalto University, Helsinki, Finland
GPA - 4.63/5
Graduated (with Honours) Nov 2017

• Bachelor's in Computer Science
Visvesvaraya Technological University
Grad May 2011 | Bangalore, India

COURSEWORK

MASTER'S

• Deep Learning
• Gaussian Processes
• Kernel Methods
• Machine learning advanced probabilistic methods
• Bayesian Data Analysis
• Algorithmic Methods of Data Mining
• Convex Optimization
• Computational Science
• Programming Parallel Computers

TEACHING

Teaching assistant for Courses on:
• Deep Learning 2016-2020
• Bayesian Data Analysis 2018-2020

SKILLS

Good with:
• Python (Including PyTorch, Numpy, Scipy, SciKit Learn and working knowledge of Tensorflow) • Matlab & Octave • Apache Spark

Some knowledge of:
• C • C++ (Cuda & OpenMP) • Stan (Probabilistic Programming) • SQL • Shell Scripting • Java • LaTeX• Apache Lucene

WORK EXPERIENCE

AALTO UNIVERSITY | Doctoral Candidate
June 2018 - now | Espoo, Finland

- Developing novel machine learning models and algorithms for applications in materials science. Supervised by Prof. Aki Vehtari (Dept. Computer Science) and Prof. Patrick Rinke (Dept. of Applied Physics).

PYMC | Google Summer of Code
2022 | Espoo, Finland

- Implementing a GPU accelerated Gaussian process inference in PyMC. Link.

AALTO UNIVERSITY | Research Assistant - Honours Program
May 2016 - August 2017 | Espoo, Finland

- Developed deep learning models to predict molecular electronic properties. Supervised by Prof. Vehtari (Dept. Computer Science) and advised by Prof. Patrick Rinke (Dept. Applied Physics).

AMAZON | Software Development Engineering in Test
Dec 2013 - Aug 2015 | Bangalore, India

AMAZON | Quality Assurance Engineer
Aug 2011 – Nov 2013 | Bangalore, India

THESIS & PUBLICATIONS

•Christoph Schattauer, Milica Todorović, Kunal Ghosh, Patrick Rinke, and Florian Libisch. *Machine Learning Sparse Tight-Binding Parameters for Defects*. Nature Npj Computational Materials, 2022. Link.

• Kunal Ghosh, Annika Stuke, Milica Todorović, Peter Bjørn Jørgensen, Mikkel N. Schmidt, Aki Vehtari and Patrick Rinke. *Deep learning spectroscopy: neural networks for molecular excitation spectra*, Wiley Advanced Science, 2019. Link.

• Annika Stuke, Milica Todorović, Matthias Rupp, Christian Kunkel, Kunal Ghosh, Lauri Himanen and Patrick Rinke *Chemical diversity in molecular orbital energy predictions with kernel ridge regression*, Journal of Chemical Physics, 2019. Link

• *Deep Learning for Predicting Molecular Electronic Properties.*, Master's Thesis, Aalto University, 2017, Link

AWARDS

2020 Research Grant (26000 €) from the Finnish cultural foundation and was featured on their website. Link
2018 Travel Grant (1000 €) from the Education Network in Condensed Matter and Materials Physics, Dept. of Applied Physics, Aalto University.
2016 Inducted into the Machine Learning Honours Program at Aalto University. Awarded for maintaining good progress in studies (completed 63 ECTS out of 90 in the 1st year) while maintaining good grades (4.55 out of 5)
2014 2^{nd}/100 teams. Amazon Internal Machine Learning Contest.
2013 99.5 percentile in GATE 2013. 1019^{th}/224160 candidates.
2004 29^{th}/~$2x10^5$ candidates. National Talent Search Scholarship. State Level.