Avishek **Kumar**

DATA SCIENTIST

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Summary

I am a data scientist that has worked on problems in fields such as fintech, healthcare, city planning, criminal justice, and genetic disease prediction using methods from machine learning and data science. I have built and debugged predictive models, performed model evaluation and selection, and deployed models into production settings. I have also trained data scientists through executive training programs and led teams of data scientists as a technical lead.

Professional Experience

Intuit   *San Diego, CA*

STAFF DATA SCIENTIST   *Jun. 2019 - Present*

- **Overdraft Early Warning System (Mint):** Built and deployed a machine learning system to predict when customers are likely to overdraft and prevent the overdraft through an email notification. This feature saved Mint customers 12 million dollars in a single year and was highlighted in both CNET and The Wall Street Journal.
- **Transaction Categorization (Mint):** (Tech Lead) Revamped the current Mint Transaction Categorization by developing a new BERT-based model. This model enabled the first Venmo and Zelle support as well as increased the overall accuracy of the model.
- **Forecasting for Personal Finance (Mint):** (Tech Lead) Led a team of three data scientists to develop an RNN-based forecasting model to forecast future spending of Mint customers.
- **Dynamic Upsell (TurboTax):** Built a model to select if a customer should be shown an upsell or not in TurboTax. The model decreased churn due to upsell fatigue by suppressing upsells for customers that are the least likely to be upselled.

Center for Data Science & Public Policy, The University of Chicago   *Chicago,IL*

DATA SCIENTIST/RESEARCH SCIENTIST   *May. 2016 - Jun. 2019*

- **Retention of HIV Patients in Medical Care (Healthcare):** Created a risk assessment tool to predict which HIV+ patients are likely to drop out of care for use by the University of Chicago HIV clinic and Chicago Department of Public Health. This work was published in Nature: Scientific Reports.
- **Prevention of Childhood Lead Poisoning (Healthcare):** Deployed a machine learning model for predicting which homes in the city of Chicago are likely to have lead hazards that lead to early childhood lead poisoning. This work was in partnership with the Chicago Department of Public Health, the Chicago Department of Innovation and Technology and Alliance HealthCare, awarded the Academy Health Local/State Innovation Prize.
- **Preventing Water Main Breaks (City Planning):** Built and deployed a machine learning system to identify which city blocks are most at risk of having water main breaks for the city of Syracuse, NY. This work has been featured in State Scoop, Water Online, and Politico and replicated in several cities as well as published in KDD.
- **The Cost of Technical Recidivism (Criminal Justice):** Developed a point-of-service model for predicting general recidivism for the Illinois Department of Corrections. Conducted a retrospective study to understand the effect of technical recidivism violations on an offender's ability to obtain future employment.
- **Executive Training:** Wrote and taught the curriculum for the Coleridge Initiative, a 3-month long course to train the heads of city and state government agencies on the use of data science methods to solve public policy problems.

Arizona State University, P.I. Associate Professor S. Banu Ozkan   *Tempe, AZ*

POSTDOCTORAL RESEARCH ASSOCIATE/SYSTEMS ADMINISTRATOR   *August 2014 - September 2016*

- Worked on problems related to protein dynamics, protein structure refinement, genetic disease prediction, and antibiotic resistance using molecular dynamics and machine learning methods.
- Wrote several software packages for studying protein dynamics and analyzing genetic disease in Python.
- Built and maintained a 1408 node supercomputer as systems administrator.
- Authored six publications in peer reviewed journals and mentored two doctoral students.

Arizona State University, P.I. Professor Michael F. Thorpe   *Tempe, AZ*

GRADUATE RESEARCH ASSISTANT   *September 2009 - August 2014*

- Developed software packages in C++, Python, and Fortran to study amorphous materials.
- Authored five publications in peer reviewed journals. Awarded over $60,000 through multiple fellowships to fund research.

Education

Arizona State University   *Tempe, AZ*

Ph.D. in Physics (Computational Condensed Matter and Biological Physics)   *December 2014*

Arizona State University   *Tempe, AZ*

M.S. in Physics (Phi Kappa Phi)   *December 2012*

Carnegie Mellon University   *Pittsburgh, PA*

B.S. in Physics with Honors   *May 2009*

Skills

Proficient	Machine Learning, Data Mining, GIS, Text Analysis, Network Analysis, Parallel Computing
Programming	Python, SQL, R, C/C++, Java, FORTRAN90, JavaScript
DevOps	AWS, Docker, Kubernetes, CircleCI
Software	Git, PostgreSQL, SQLite, LaTeX, Mathematica, Matlab, NumPy, SKlearn, Tensorflow, Pandas