Sudeep Agarwal

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Passionate and driven **machine learning engineer** with **3+ years** of experience designing and developing **large scale, privacy-aware recommendation engines**, with a focus on using **statistical techniques** and **applied machine learning** to drive **feature development** and **product growth**.

EDUCATION

Georgia Institute of Technology (Honors Program) **Aug 2015 - Dec 2018**
B.S. Computer Science (Artificial Intelligence, Modeling and Simulation specializations) GPA 3.94

SKILLS

Programming Languages: C, C++, Javascript, Java, Objective-C, Python, R, SQL, Swift, Scala
Concepts: Agile Development, Artificial Intelligence, Big Data, Cloud Computing, Computer Architecture, Database Management, Image Analysis, Mobile Development, Machine Learning, Deep Learning, Natural Language Processing, Parallel Processing, Signal Processing, Robotics, System Administration, Data Visualization, Data Mining, Statistical Analysis, Predictive Modeling
Tools: Spark, Hadoop, Tensorflow, Avro, WebRTC, Flask, Amazon Web Services, Google Cloud Platform, Jupyter, Pandas, Scikit-Learn, Numpy, NLTK, PyTorch, Keras, MySQL, PostgreSQL, Tableau, D3
Spoken Languages: English, Hindi

EXPERIENCE

Machine Learning Engineer (Apple News, Stocks & Weather), Apple — *Cupertino, CA* **Nov 2020 - Present**
- Performed research to identify key issues with ranking algorithms, architected solutions, and presented findings to upper management
- Built infrastructure to run accurate simulations on recommendations, enabling data-driven feature development and regression testing
- Played instrumental role in planning and designing next generation of on-device personalization for News, Stocks, and Weather apps

Software Engineer (Apple News, Stocks & Weather), Apple — *Cupertino, CA* **Mar 2019 - Nov 2020**
- Developed on-device personalization algorithms that improve news recommendations for millions of users and respect user privacy
- Spearheaded features that drove engagement and subscriptions, e.g. location based suggestions, personalized groups in the News+ feed
- Designed novel architecture that clusters user preferences to guarantee k-anonymity while maintaining high prediction accuracy

Software Engineering Intern (Apple News, Stocks & Weather), Apple — *Cupertino, CA* **May 2018 - Aug 2018**
- Designed and implemented a distributed machine learning pipeline to improve personalization within News, Stocks, and Weather apps
- Researched and implemented novel on-device, privacy-aware machine learning techniques for hyperparameter optimization at scale
- Presented work on on-device hyperparameter search at internal Machine Learning Summit, and deployed project to production

Data Scientist Intern (Sales Strategy & Operations), Cisco Systems — *Research Triangle Park, NC* **May 2017 - Aug 2017**
- Designed an unsupervised machine learning model to predict the effectiveness of Cisco sellers in selling cloud products and services
- Performed statistical analyses including random forest regression and Spearman correlation to determine attributes of top Cisco sellers
- Developed and piloted an intelligent Cisco Spark bot that improves the sales training experience for potentially 18,000 Cisco sellers
- Placed 2nd out of 18 teams at the Cisco ECN Hackathon for developing a chat bot using natural language processing techniques

Data Science Intern, Vital Labs — *San Francisco, CA* **May 2016 - Aug 2016**
- Developed signal processing routines on human physiological data resulting in improved quality of analysis
- Identified patterns in datasets by conducting extensive data analysis such as silhouette analysis and k-means clustering
- Enhanced signal to noise ratio using machine learning techniques like principal component analysis
- Improved data processing speed by 91% by implementing a parallel computing pipeline on the cloud using Spark

PUBLICATIONS

Federated Evaluation and Tuning for On-Device Personalization: System Design & Applications. Paulik M, Seigel M, Mason H, Telaar D, Kluivers J, van Dalen R, Lau CW, Carlson L, Granqvist F, Vandevelde C, Agarwal S, et al. *arXiv preprint arXiv:2102.08503 (2021)*.

Mixed Reality for Learning Programming. Kim J, Agarwal S, Marotta K, Li S, Leo J, and Chau DH.
In Proceedings of the 18th ACM International Conference on Interaction Design and Children (IDC '19). ACM, New York, NY, USA, 574-579.
Won the Honorable Mention Award at IDC '19

Augmenting Coding: Augmented Reality for Learning Programming. Dass N, Kim J, Ford S, Agarwal S, and Chau DH. In Proceedings of the Sixth International Symposium of Chinese CHI (Chinese CHI '18). ACM, New York, NY, USA, 156-159.
Won the Best Poster Award at Chinese CHI '18

Finding Data in a Literary Corpus: A Curatorial Approach. Rittenhouse B, Agarwal S. In Proceedings of Digital Humanities 2018, DH 2018, Book of Abstracts, El Colegio de México, UNAM, and RedHD, Mexico City, Mexico, June 26-29, 2018.