

Priyanka Kargupta



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pkargupta



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Education

University of California, Berkeley

2018-2022

Major: Computer Science
GPA: 3.74/4.0

Association of Women in EE&CS, Laya of Berkeley, Bangali Student Association

Coursework

- CS61B: Data Structures
- CS170: Algorithms
- CS188: Artificial Intelligence
- DATA100: Principles of Data Science
- CS61C: Computer Architecture
- CS 162: Operating Systems*
- STAT140: Probability for Data Science*

- CS70: Discrete Math and Probability
- DATA8: Foundations of Data Science
- CS61A: Structure and Interpretation of Computer Programs
- EE16/B: Designing Information Devices and Systems I/II*

*enrolled for Fall 2020

Experience

Intel Undergraduate Research Scholar at BAIR (Berkeley Artificial Intelligence Research Lab)

2020 - 2021

- Working under Ren Ng on multi-object tracking and segmentation methods, specifically occluded object detection and improving bounding box association.

Product Manager - Vyncs

2018 - Summer 2020

- Lead development and design teams in implementing cutting-edge technological solutions in the connected car and IoT fields.
- Initiated, designed, and lead development of a phone sensor-based on-demand location detection and sharing mobile application with 70,000+ users.
- Published "Analyzing Driving Data using the ADAPT Distributed Analytics Platform for Connected Vehicles" to the 2019 IEEE International Conference on Data Science and Advanced Analytics (DSAA).
- Led design and development of an Android augmented reality mobile application which renders visual location data (e.g. nearby restaurants, traffic congestion/accidents) through the user's phone camera through world to local device coordinate space transformations and 3D anchors.
- Worked on SEO, marketing and business strategy/management for Vyncs, the #1 best-seller, connected car, and smart transportation device on Amazon. Strategies suggested and executed increased the company sales by 175%.

Research Intern, Data Sciences Group, Intelligent Systems Division - NASA Ames Research Center

2017 - 2018

- Designed and implemented deep image classification algorithms for swarms of drones in loosely coupled environments.
- Presented poster on "Self Similarity, Contraction Mappings, and Distributed Deep Learning of Neural Networks" at a center-wide symposium.
- Algorithms implemented using Caffe (Python and C++) on AWS EC2 Accelerated Computing Linux instances.

Software Engineering/Data Science Intern - Agnik

2015 - 2018

- Developed web (.NET, HTML, CSS, Node.js) and mobile (Android/Java) applications for Agnik as well as web pages and graphics.
- Analyzed large datasets of cellphone mobility data to accurately extract movement trips and generate map data visualizations
- Researching various new technologies (i.e. Bluetooth BLE beacons) to apply to the development and improvement of Agnik's connected car and IoT technologies.

Selected Publications & Projects

Pandemic Spread Rate Estimation Based on Laplacian of Mobility Network Graphs

2020

- Modeled transportation flow patterns from mobile phone GPS mobility data as network graphs for pandemic growth rates, based on computer virus spread behavior using Scipy, Geopy, and NetworkX.
- Built linear, ridge, and lasso regression models with Scikit-learn in order to predict COVID-19 fatalities and county-based vulnerability to the pandemic based on socioeconomic factors (income, usage of public versus private transportation) and health resource availability within counties. Created data visualizations using Plotly.

Randomized Contraction Mapping Algorithm for Distributed Image Data Analysis of Vehicles

2019

- Designed a randomized contraction mapping algorithm that exploits self-similar properties within data, namely images, in order to generate a lower-dimensional, covariance-preserving representation that can efficiently be sent over high latency networks. Applied towards efficient on-board driver data analysis, specifically for monitoring driver behavior and advanced driver safety techniques. Used Python for implementation. Presented paper at IEEE DSAA'19.
- Publication: "Analyzing Driving Data using the ADAPT Distributed Analytics Platform for Connected Vehicles" to the 2019 IEEE International Conference on Data Science and Advanced Analytics (DSAA)

Healshare: Respiratory Comfort Analysis Application for COVID-19 Response

2020

- Helped develop a platform to record and visualize breathing data and applied onboard signal processing and in-cloud data analysis algorithms for detecting patterns and trend analysis for early detection of breathing discomfort; data analysis for mapping audio signals to volume of respiratory air intake.
- Development Team Lead; Top 15 Winner of The Global Hack, a global hackathon with 12,000+ participants from 100+ countries.

Familiar Stranger Networks and Impact on Local Transportation Risk: Smartphone Geospatial Data Analysis

2020

- Utilized GeoSpark and SQL to analyze user geospatial data to construct networks of individuals who encounter each other day-to-day. Analyzed the impact of these "familiar networks" on the collective driving risk of the networks and its potential effect on vehicle insurance risk assessment.

Awards

- 2020 Global Top 15 Winner for Health & Wellness: The Global Hack <https://tinyurl.com/healshare>
- 2018 National Center for Women & Information Technology Maryland Winner
- 2018 National Center for Women & IT National Honorable Mention
- 2017 National Top 15 Company & JA Maryland Company of the Year <https://tinyurl.com/medleyco>
- 2016 Rep. Elijah Cummings's Congressional App Challenge Winner <https://tinyurl.com/foodspinnews>
- 2016 MIT Media Lab/QuHacks Hackathon Winner: 1st Place

Skills

- Programming: Java, Python, C, SQL, Javascript, Android Development, C++, C#, R, HTML5/CSS
- Development Tools: AWS (EC2, Lambda), Alexa Skill Development, Spark, GeoSpark, Pandas, PyTorch, scikit-learn, Plotly, Caffe, .NET, Linux, Firebase
- Graphic & Video Design/Administrative: Adobe Photoshop, Adobe Illustrator, Adobe Premiere Pro, Camtasia