Tara V. Anand

Curriculum Vitae

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EDUCATION

09/2020 – present **Columbia University, Department of Biomedical Informatics, New York, NY**
Ph.D. Biomedical Informatics

09/2016 – 05/2020 **Barnard College of Columbia University, New York, NY**
Bachelor of Arts in Computer Science, Minor in Middle Eastern and Asian Cultures
GPA: 3.80/4.00, Cum Laude, Departmental Honors for Computer Science, Dean's List

HONORS AND ACHIEVEMENTS

2020 Grace Lee Boggs Bold Award for Coalition Building
2020 Departmental Honors in Computer Science, Barnard College of Columbia University
2020 Bear Pin Awardee
2019 Student Leadership Award Recipient
2019 Clare Boothe Luce Scholar
2016 – 2020 Deans' List, Barnard College of Columbia University

RESEARCH EXPERIENCE

05/2019 – 06/2020 **Student Researcher, Clare Boothe Luce Scholar** Mentor: Herbert Chase, M.D., M.S.
Department of Biomedical Informatics, Columbia University Medical Center, New York NY
"Prevalence of potentially harmful three-drug and four-drug interactions in individual patients: implications for increased likelihood of adverse events"

- Researching physician prescribing behaviors through analysis of patient electronic health records and databases from the Observational Health Data Science and Informatics distributed data network standardized to a common data model
- Performed network analysis on graphical representations of patient prescriptions and drug interactions
- Leveraged RxNorm and other drug databases to map interactions to classes
- Developed algorithms in Python and MySQL to reconcile drug-use timelines, identified concurrent use with >2 day overlap and mapped to clinical decision support alert system's DDI database to determine prevalence and DDI severity

09/2018 – 05/2019 **Student Researcher** Principal Investigator: Gail Kaiser, Ph.D.
Programming Systems Lab, Columbia University, New York NY

- Implemented control-flow analysis in HitoshiIO, a behavioral-code-similarity detector for Java methods
- Researched performance of different similarity metrics, de-compilers, and methods of data-flow and control-flow analysis

11/2018 **Virtual Try-On Systems** Principal Investigator: Ming Lin, Ph.D.
Technica Hackathon, University of Maryland, College Park, MD

- Worked on the Virtual Try-On Systems project at the University of Maryland women's hackathon research division
- Researched and implemented different compression and decompression algorithms designed specifically for the mesh data .obj files

06/2015 – 08/2015 **Student Researcher** Mentor: Diane Kamen M.D., MSCR
Medical University of South Carolina, Charleston, SC
"Gene x Environment Interactions in Systemic Lupus Erythematosus: Polymorphisms in ITGAM and Smoke Exposure among African Americans"

- Evaluated associations between two single nucleotide polymorphisms in the gene ITGAM and passive exposure to smoke during childhood in a population of African-American women with systemic lupus erythematosus
- Performed polymerase chain reaction tests
- Published article in the Columbia Undergraduate Student Journal (2016)

WORK EXPERIENCE

05/2018 – 08/2018 **Computer Scientist Intern** Supervisor: Peter Fransen
Adobe Systems, San Jose, CA

- Researched methods of gathering insights for user segmentation

- Wrote algorithms to analyze associations between image metadata and user characteristics
- Developed novel method of utilizing supervised ML algorithms that preserve privacy by localizing sensitive information to a user's device
- Developed iOS App in Swift to process image metadata from users' photo library and highlight significant images
- Submitted patent that was approved by the Adobe Intellectual Property organization and is pending approval by the US Patent Office

05/2017 – 08/2017 **Data Science/Computer Sciene Intern** Supervisor: Michael Heller
IBM, North Castle, NY
- Investigated generating standardized, accurate labels for large datasets through training machine learning NLP models in Watson Knowledge Studio and BlueMix's Natural Language Classifier
- Created an ontology to eliminate redundancies and stratify potential labels within logical groups, establishing the type system for the NLP model
- Developed a structured pipeline for integrating feedback from subject matter experts into the NLP model
- Developed a dashboard to analyze project metrics in NodeRED

TEACHING EXPERIENCE & MENTORSHIP

07/2020 – 08/2020 **Teaching Assistant** Professor: Orthi Rabbane, M.S.
Pre-College Programs, School of Professional Studies, Columbia University, New York, NY
Course: Big Data, Machine Learning, and Their Real World Applications
- Worked hands-on with small groups of students guiding research question ideation and the process of developing a machine learning model to answer this question
- Delivered lecture on the applications of big data and machine learning in the biomedical informatics field
- Constructed and led the students through a series of debates regarding ethical questions in artificial intelligence

06/2019 – 05/2020 **Teaching Assistant** Professor: Paul Blaer, Ph.D.
Department of Computer Science, Columbia University, New York, NY
Courses: Data Structures and Algorithms, Introduction to Computer Science in Java
- Leading weekly office hours and review sessions to reinforce course material
- Grading assignments and exams
- Working one-on-one with students to accommodate various learning needs and background levels

09/2018 – 01/2019 **Mentor**
Application Development Initiative Mentorship, Columbia University, New York, NY
- Provide counseling guidance for freshmen regarding computer science tracks and associated curricula
- Train and coach for technical interviews

09/2018 – 01/2019 **Coordinator and Instructor**
Undergraduate Student Life, Columbia University, New York, NY
Jumpstart for Aspiring Developers and Entrepreneurs (JADE)
- Developed curriculum for weeklong program for 20 first-year students from underrepresented backgrounds in computer science and technology
- Taught introductory accelerated web development course in HTML, CSS, JavaScript and Git
- Organized visits to startups, accelerators, and venture capital firms in NYC and facilitated conversations regarding diversity in the space, and ethical questions faced by these companies

09/2017 – 12/2017 **Teaching Assistant** Professor: Jacob Alexander, Ph.D.
Department of Chemistry, Barnard College, New York, NY
Course: General Chemistry Lab
- Helped students develop laboratory techniques
- Provided constructive feedback on and graded lab reports

01/2017 – 08/2018 **Instructor**
Girls Who Code, Columbia University, New York, NY (01/2017-05/2017)
Adobe Systems, San Jose, CA (05/2018-08/2018)
- Taught high school students web development skills in Python, Flask, HTML, CSS, JavaScript
- Worked one-on-one with students to provide individual and personalized guidance and mentorship

CERTIFICATIONS AND RELEVANT TRAINING

2019 Protection of Human Research Subjects, Collaborative Institutional Training Initiative (CITI) Certification, *CUMC*
2019 HIPPA Training, *CUMC*
2019 Conflicts of Interest Training, *CUMC*

SKILLS

Programming Languages: Python, Java, C, C++, Swift, JavaScript, HTML, CSS, UNIX, Git, SQL
Technical Skills: iOS development, NodeRed, Cloudant NoSQL Databases
Languages: English, French, Persian