

# Tara V. Anand

## Curriculum Vitae

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### EDUCATION

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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 Asian and Middle Eastern Cultures  
*GPA: 3.80/4.00, Cum Laude, Departmental Honors for Computer Science, Dean's List*

### HONORS AND ACHIEVEMENTS

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2020 Cum Laude, Barnard College of Columbia University  
2020 Departmental Honors for Computer Science, Barnard College of Columbia University  
2020 Bold Award for Coalition Building  
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

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05/2019 – present **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 – **Student Researcher** Mentor: Diane Kamen M.D., MSCR  
08/2015 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 – **Computer Scientist Intern** Supervisor: Peter Fransen  
08/2018 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 – **Data Science/Computer Science Intern** Supervisor: Michael Heller  
08/2017 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

- 06/2019 – **Teaching Assistant** Professor: Paul Blaer, Ph.D.  
present 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 – **Mentor**  
present Application Development Initiative Mentorship, Columbia University, New York, NY
- Provide counseling guidance for freshmen regarding computer science tracks and associated curricula
  - Train and coach students for technical interviews

- 09/2018 – **Coordinator and Instructor**  
 01/2019 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 – **Teaching Assistant** Professor: Jacob Alexander, PhD  
 12/2017 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 – **Instructor**  
 08/2018 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

## PRESENTATIONS

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- 2019 Prevalence of potentially harmful three-drug and four-drug interactions in individual patients: implications for increased likelihood of adverse events. Poster presented at: Columbia Department of Biomedical Informatics annual retreat. September 6, 2019; New York, NY.
- 2016 Gene x Environment Interactions in Systemic Lupus Erythematosus: Polymorphisms in ITGAM and Smoke Exposure among African Americans. Article in Columbia Undergraduate Science Journal; 2016. Poster presented at: Columbia Undergraduate Science Journal Symposium. April 10, 2016; New York, NY.

## CERTIFICATIONS AND RELEVANT TRAINING

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

## SKILLS

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*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

## EXTRACURRICULAR ACTIVITIES

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- 2019 – Present Middle School Junior Youth Service Empowerment Group Leader
- 2017 – Present Columbia Organization of Rising Entrepreneurs (Executive Board Member)
- 2016 – Present Orchesis Dance Group
- 2016 – Present Institute for Studies in Global Prosperity Undergraduate Seminar
- 2016 – Present Columbia Baha'i Club (President)

2018 – 2019	Blockchain@Columbia (Head of Operations)
2017 – 2019	New Student Orientation Program at Barnard (Crew Captain, Orientation Leader)
2016 – 2019	Columbia University Ballet Ensemble (Assistant Executive Director)
2016 – 2017	Columbia University Sewa (Secretary)
2016 – 2017	Gamma Phi Beta (Internal Social Chair)

## REFERENCES

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Herbert Chase, M.D., MS  
Department of Biomedical Informatics  
Columbia University Medical Center  
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Paul Blaer, Ph.D.  
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(212) 939-7034  
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Peter Fransen  
Adobe Systems  
San Jose, California  
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