Arinjoy Basak

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EDUCATION

VIRGINIA TECH
PhD in Computer Science
Exp. Fall 2022 | Blacksburg, VA
Advisor: Dr. Clifford A. Shaffer
Focus: Analyzing problem-solving patterns in students
Current GPA: 3.97

VIRGINIA TECH
MS in Computer Science
Spring 2019 | Blacksburg, VA
Final GPA: 3.97

IIEST, SHIBPUR
BE in Computer Science and Technology
Grad. May 2016 | Howrah, West Bengal, India
Cum. GPA: 9.45 / 10.0
First Class with Honours

AFFILIATIONS

• NDSSL, Biocomplexity Institute, Virginia Tech
May 2017 - May 2019
• Tau Beta Pi Engineering Honor Society
December 2018 - Present
Position - Officer, Webmaster
• The Honor Society of Phi Kappa Phi
December 2017 - Present

SKILLS

PROGRAMMING
Over 5000 lines:
JavaScript • Python • Java • C • MySQL

Over 1000 lines:
Apache Spark • C++

FAMILIAR FRAMEWORKS
Apache Hadoop • Apache Hive • Matlab • Git • WEKA • Oracle 10g • PostGIS •Gephi

COURSEWORK

Data Analytics • Probability Distribution Theory • Statistical Inference • Convex Optimization • Theory of Algorithms • Numerical Analysis • Network Science

AREAS OF INTEREST

Digital Education, Data Science, Machine Learning, Artificial Intelligence, Application of Analytics to Healthcare and Software Engineering

RELEVANT RESEARCH EXPERIENCE

RESEARCH GROUP OF DR. CLIFFORD SHAFFER | Graduate Research Assistant
June 2019 – Present | Virginia Tech

- **Conceptualizing methods to analyze problem-solving attempts** submitted by students to **provide targeted feedback** on errors. (Fall 2020-current)
- **Constructed an intuitive prototype** for solving complex algebraic problems in engineering mechanics undergraduate courses. (Fall 2019-Spring 2021)

NETWORK DYNAMICS AND SIMULATION SCIENCES LABORATORY | Graduate Research Assistant
May 2017 – May 2019 | Virginia Tech

- **Uncovered multi-year hotspots of opioid abuse** in VA, WV and NC using network scan statistics and open Medicare prescription data to **deliver actionable insights on opioid prescription practices**. (2018-2019)
- **Constructed attacks on label inference algorithms** in labeled graphs using structure-based information and **improved upon complex attacks using simple low-budget techniques** (Spring 2019-Spring 2020)

PUBLICATIONS

ASEE COMPUTERS IN EDUCATION 2021 | Towards Designing an Interactive System for Accelerated Learning and As-sessment in Engineering Mechanics: A First Look at the Deforms Problem Solving System
Arinjoy Basak, Todd Shuba, Will Fox, Sneha Davison, David A. Dillard, Jacob Grohs, Nicole Pitterson, Clifford A. Shaffer

CHEP 2021 (POSTER), CHEP 2020 (POSTER) | An Interactive System for Teaching Problem Solving in Engineering Mechanics
Arinjoy Basak, Todd Shuba, Daniel Kweon, Will Fox, Sneha Davison, David A. Dillard, Clifford A. Shaffer, Jacob Grohs, Nicole Pitterson

JMIR, VOL 5, NO 2 (2019): APR-JUN | Detection of Spatiotemporal Prescription Opioid Hot Spots With Network Scan Statistics: Multistate Analysis
Arinjoy Basak, Jose Cadena, Achla Marathe, Anil Vullikanti

AAAI 2018 | Graph Scan Statistics with Uncertainty
Jose Cadena, Arinjoy Basak, Xinwei Deng, Anil Kumar Vullikanti

ADDITIONAL WORK EXPERIENCE

INSTRUCTOR OF RECORD
CS 2505 - Intro to Computer Organization 1 (majors), Summer 1 2022
CS 1064 - Intro to Python, Summer 1 2021

GRADUATE TEACHING ASSISTANT
CS 2505 - Computer Organization 1, Spring 2021
CS 5704 - Software Engineering, Fall 2020
CS 1064 - Intro to Python (non-majors), Fall 2016-Spring 2017

REFERENCES

- Dr. Clifford A. Shaffer; Professor, Computer Science; Associate Department Head for Graduate Studies; Virginia Tech, `shaffer@vt.edu`.
- Dr. Jacob Grohs; Associate Professor, Engineering Education; ; Virginia Tech, `jrgrohs@vt.edu`.
- Dr. Nicole Pitterson; Assistant Professor, Engineering Education; Virginia Tech, `npitters@vt.edu`.
- Dr. Jin-Hee Cho; Associate Professor, Computer Science; Virginia Tech, `jicho@vt.edu`.
- Dr. Anil Vullikanti; Professor, Computer Science; University of Virginia Biocomplexity Institute, `asv9v@virginia.edu`
- Dr. Allan Dickerman; Senior Scientist, Network Systems Science and Advanced Computing; University of Virginia Biocomplexity Institute, `awd5y@virginia.edu`