Sudhan Chitgopkar

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Education

University of Georgia Aug 2019 - May 2023
(B.S) Computer Science, (B.A) International Affairs *GPA: 3.98/4.00*
Honors: Dean's List, Presidential Scholar, TEDx Speaker, UGA Summer Research Fellow, Outstanding CS Undergrad (top 0.3% of class), Gold Presidential Service Award
Relevant Coursework: Software Engineering, Computer Graphics, Evolutionary Computation, International Law, Strategic Intelligence, Security Leadership Practicum

Experience

Amazon May 2022 – August 2022
Software Engineering Intern *Seattle, WA*
- Automated server health analysis on *.amazon.com's data-store using an AWS Lambda function in Java
- Decreased time needed to notify customers of duress by >90% using AWS SNS
- Designed a scalable software solution to notify 25+ internal teams of load-shedding requirements

Southern Company May 2021 – May 2022
Technology Solutions Intern *Atlanta, GA*
- Analyzed DNS, IP, and WhoIs data on 280+ cases to identify a threat actor causing $1.2M+ in damages
- Briefed the Assistant US Attorney's office, FBI, Secret Service, and 7+ utility partners on data patterns
- Guided FBI and external utility companies on data analyses methods used for threat actor identification
- Designed and developed a dashboard for documentation version control of 50+ nuclear software applications

University of Georgia Aug 2020 – Dec 2021
Research Assistant *Athens, GA*
- Developed 20+ interactive discrete math tutorials for Grafstate, a programming language and tool developed at UGA for visualization and manipulation of finite state machines and automata
- Assisted in modifying Grafstate syntax to maximize intuitiveness for 100+ student users

Teaching Assistant
- Assisted 35+ students with Theory of Computation coursework 3 times per week
- Taught and solved problems involving finite automata, decidability, and Turing machines
- Discussed course refinements and structure weekly with the course professor

Research Fellow
- 1/30 students awarded a grant to conduct 340+ hours of intensive, faculty-mentored research
- Derived a mathematical model for Bayesian Network data tuning using DNA sequencing algorithms
- Implemented a Bayes inference model in C# and Java using Infer.NET

Leadership & Involvement

SolveUGA Aug 2022 – Present
Founder, President *Univ. of Georgia*
- Founded UGA's flagship computational problem-solving team with 200+ members and 2 faculty
- Leading weekly discussions on algorithmic complexity and optimization problems
- Solving and teaching various toy-problems in computer science and math to undergrad and grad students

Small Satellite Research Lab Apr 2021 – Present
Software Engineer *NASA Ames*
- Developing core flight software in C++ using NASA F' for low-earth-orbit cube satellite, MEMESat-1
- Automating satellite command-execution-testing using Python, telemetry libraries, and ground station APIs

UGAHacks May 2021 – May 2022
Sponsorship Director *Major League Hacking*
- Led 7 undergrads in garnering $30,000+ in funding to host UGA's flagship annual hackathon
- Coordinated with 50+ representatives across 14 companies to host 12+ workshops over 48 hours

Franklin Residential College May 2021 – May 2022
Director's Assistant *Univ. of Georgia*
- 1 of 3 undergrads leading one of UGA's largest living-learning communities (FRC) for students in the Franklin College of Arts & Sciences
- Managed 10+ board members in hosting 2 weekly academic & service events for 96+ members

Research

Towards Analog I/O in Generative Art Development Aug 2022 – Present
Independent Study *Univ. of Georgia*

- Developing generative art and evolutionary algorithms that respond to real-time analog input
- Visualizing artwork using Java, Javascript, and JADE (see projects) under an open-source, public license

Hobson's Choice: Effects of Institutional Trust on Cryptocurrency Adoption Mar 2020 – Dec 2021
Dr. Gulcan Saglam *UGA School of Public & Intl Affairs*

- Conducted a literature review of 30+ publications to investigate factors driving global cryptocurrency adoption
- Developed a quantitative study to analyze crypto adoption across 20+ countries
- Presented as a talk at UGA's flagship undergrad international affairs research colloquium

Deriving a Mathematical Model for Virological Mutation Prediction Dec 2019 – Aug 2021
Dr. Gerasim Iliev *UGA Dept. of Mathematics*

- Studied walk models, string similarity algorithms, and DNA sequencing algorithms for Bayesian network model retraining
- Implemented and 7+ algorithms for pruning Bayesian network output data, leading to 76 percent faster model convergence
- Presented as a talk at the 2020 UGA Undergraduate Research Symposium, Fellowship, UGA Fellowship Research Forum, and as a poster at the UGA Summer Undergrad Math Research Conference

Projects

JADE | *C, C++, OpenGL, SDL* Jan 2022 – Present

- Developed a graphics engine from scratch with support for 2D and 3D rendering
- Used for mathematical visualization of fractal generation, modular multiplication, and cellular automata

WikiViz (HackGT 9 Winner) | *JavaScript, P5.js, APIs* Oct 2022

- Visualized internal connections between Wikipedia articles using an interactive 3D undirected graph
- Available for usage at `sudhan.dev/wikiviz/html`

Evolutionary Playground | *Python, DEAP* Aug 2021 – Dec 2021

- Developed a series of evolutionary computation programs to solve optimization and root-finding problems
- Solved various NP-complete (i.e. n-Queens) and NP-hard (i.e. Traveling Salesman) problems

Swarm Sense | *Java, Processing, Python, Jupyter Notebook* May 2018 – May 2020

- Created a genetic algorithm from scratch to breed competitive co-evolution in artificial life simulations
- Conducting data analysis on flock performance using Jupyter Notebook

Honors & Awards

Outstanding Undergrad in CS May 2022

- 1 of 4 undergrads from a pool of 1,200 recognized for outstanding academic and work achievement

Richard B. Russell Security Leadership Fellow Aug 2022

- 1 of 15 undergrads selected to pursue a rigorous, year-long international security policy fellowship through UGA's Center for International Trade & Security (CITS)

TEDx Speaker Oct 2021

- 1 of 2 undergrads selected to present a TEDx talk at UGA's flagship annual TEDxUGA event
- Talk selected by the global TED organization for notification of 35M+ subscribers worldwide, generating 35,000+ views

CURO Summer Research Fellow May 2020

- 1 of 30 undergrads selected to pursue 340+ hours of intensive, grant-funded, faculty-mentored research
- Developed a Bayesian Classifier and corresponding mathematical model to predict mutations in the influenza virus

Technical Skills

Languages: Java, C/C++, Python, BASH, PHP, SQL, HTML + CSS, Javascript
Frameworks/Libraries: Bootstrap, SDL, DEAP, Processing, P5.js, OpenGL
Dev Tools: AWS Lambda, DynamoDB, Emacs, *nix Systems, Shell, Figma, Git, LaTeX, CI/CD