Ama A. Koranteng

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https://amakora0.github.io

Education

Johns Hopkins University — Sep 2020 - Exp. Aug 2025
PhD, Computer Science — *Advisor: Michael Dinitz*

Johns Hopkins University — Dec 2022
MSE, Computer Science

Massachusetts Institute of Technology — Feb 2020
BS, Mathematics

Experience

Boeing — Applied Mathematics Intern — Jun - Sep 2024
Supervisor: Dr. Richard Joel Thompson

- Supported development of quantum heterogeneous computing resource estimator tool
- Wrote software to take in Python-implemented algorithms and output directed acyclic graph (DAG) representations of the input algorithms
- Developed mathematical mixed-integer linear program formulation for algorithm workflow optimization, based on the DAG representations

MIT Theory of Computation Group — Research Intern — Jun 2018 - May 2019
Advisor: Dr. Jayson Lynch

- Read and synthesized papers on gadget abstractions used to prove computational complexity of various games
- Rigorously defined and reconciled new and existing frameworks and gadget abstractions
- Solved open problems related to these papers, including designing algorithms and proving hardness results

Northrop Grumman — Autonomy Intern — Jun–Aug 2017
Supervisor: Dr. Jonathan Las Fargeas

- Studied and modified existing distributed algorithms for collaborative drones
- Implemented algorithms in C# using behavior trees in the Unity game engine

Northrop Grumman — Autonomy Intern — Jun–Aug 2016
Supervisor: Dr. Jonathan Las Fargeas

- Created MATLAB models and Java programs to model complex offensive and defensive aircraft combat maneuvers

Publications

with Greg Bodwin, Michael Dinitz, and Lily Wang
Light Edge Fault Tolerant Graph Spanners
Under Submission, 2024

with Michael Dinitz, Guy Kortsarz, and Zeev Nutov
Improved Approximations for Relative Survivable Network Design
Workshop on Approximation and Online Algorithms (WAOA), 2023

with Michael Dinitz and Guy Kortsarz
Relative Survivable Network Design
International Conference on Approximation Algorithms for Combinatorial Optimization Problems (APPROX), 2022

Awards

NSF Graduate Research Fellowship — 2022

GEM Fellowship (declined) 2022

Graduate Fellowship for STEM Diversity (declined) 2022

Wu and Zhang Endowed Graduate Student Fellowship 2020

Google Computer Science Research Mentorship Program 2019

Bloomberg Grace Hopper Travel Grant 2016

Generation Google Scholarship 2014

NCWIT Aspirations in Computing Award 2014

SERVICE

Advisor and **Mentor**, JHU Whiting Internships in Science and Engineering Jun 2023 - May 2024

- Advised and mentored a Baltimore city high school student
- Introduced student to basic graph theory and algorithms concepts
- Guided student through a programming project in which they implemented graph algorithms in Python
- Mentored several students in the program

Conference Subreviewer

- ESA 2023, 2024
- ICALP 2023
- SIROCCO 2023

PhD Representative, JHU CS Diversity and Inclusion Committee Jan-Dec 2022

- Worked with department administrators to help start and facilitate the JHU CS PhD Mentor Hour series, where senior PhD students give advice to junior students on a variety of topics in a casual, discussion-based setting

Co-Organizer, JHU CS Theory Seminar Jan-May 2022

Teaching Assistant, Algorithmic Game Theory (JHU) Jan-May 2022

Peer Mentor, MIT Student Support Services 2017-2019

- Provided guidance, emotional and logistic support for undergraduate students through their leaves of absence (particularly students leaving for health reasons)

Co-Organizer and **Educator**, MIT Educational Studies Program 2014-2016

- Organized the MIT Summer HSSP program, a summer extracurricular education program for over 100 middle and high school students
- Organized the MIT Cascade program, a free after-school high-school program for over 30 low-income Boston-area students
- Interviewed and hired teachers, taught courses, advertised for both programs

TALKS

Relative Survivable Network Design
JHU CS Theory Seminar, *Baltimore, MD, USA* Nov 2023
Capital Area Theory Seminar (CATS), *College Park, MD, USA* Nov 2023

Improved Approximations for Relative Survivable Network Design
WAOA 2023, *Amsterdam, The Netherlands* Sept 2023

Relative Survivable Network Design
APPROX 2022, *Online* Sept 2022

SKILLS Python, Java, LaTeX, discrete optimization, graph algorithms, approximation algorithms, discrete mathematics, theoretical computer science, research

AFFILIATIONS Institute for African American Mentoring in Computing Sciences (iAAMCS), Society for Industrial and Applied Mathematics (SIAM), National Center for Women and Information Technology (NCWIT), Rewriting the Code (RTC)