

Sofiya Semenova

CONTACT INFORMATION

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EDUCATION

University at Buffalo, Buffalo, NY **Aug 2018 - present**
Ph.D. in Computer Science and Engineering
Advisor: Dr. Karthik Dantu

Brandeis University, Waltham, MA **Aug 2013 - May 2017**
B.S. in Computer Science (High Departmental Honors)
Thesis: “[Clouds That Think: Applications of Machine Learning Techniques for Elastic Databases](#)”
Thesis Advisor: Dr. Olga Papaemmanouil
Minor: Physics

PUBLICATIONS

Conferences & Journals

1. Ali J. Ben Ali, Marziye Kourosli, **Sofiya Semenova**, Zakieh Sadat Hashemifar, Steven Y. Ko, Karthik Dantu. “[Edge-SLAM: Edge-Assisted Visual Simultaneous Localization and Mapping](#).” TECS, August 2022.
2. Ryan Marcus, Olga Papaemmanouil, **Sofiya Semenova**, and Solomon Garber. “[NashDB: An Economic Approach to Fragmentation, Replication and Provisioning for Elastic Databases](#).” SIGMOD 2018.

Workshops, Posters, & Demos

1. **Sofiya Semenova**, Pranay Meshram, Timothy Chase, Steven Y. Ko, Yu David Liu, Lukasz Ziarek, and Karthik Dantu. “[Poster: A Modular, Extensible Framework for Modern Visual SLAM Systems](#).” MobiSys 2022.
2. **Sofiya Semenova**, Steven Y. Ko, Yu David Liu, Lukasz Ziarek, and Karthik Dantu. “[A Quantitative Analysis of System Bottlenecks in Visual SLAM](#).” HotMobile 2022. — *Best Poster Award*
3. Ali J. Ben Ali, **Sofiya Semenova**, and Karthik Dantu. “[Poster: Platform Variability in Edge-Cloud Vision Systems](#).” HotMobile 2019.
4. Ryan Marcus, **Sofiya Semenova**, and Olga Papaemmanouil. “[Demo: A Learning-based Service for Cost and Performance Management of Cloud Databases](#).” ICDE 2017.

TEACHING

University at Buffalo, Buffalo, NY
Graduate Teaching Assistant

- CSE 468/568 Robotics Algorithms – Fall 2020
- CSE 220 Systems Programming – Spring 2019
- CSE 250 Data Structures – Fall 2018

Brandeis University, Waltham, MA
Undergraduate Teaching Assistant

- CS 11a Introduction to Computer Science – Fall 2014

SERVICE AND LEADERSHIP

University at Buffalo, Buffalo, NY

- Artifact Evaluation Committee Member – MobiSys ‘23
- Shadow PC – SenSys ‘22
- Web Chair – SEMI (Workshop on Simplifying Edge and Mobile Intelligence), MobiSys ‘20
- Graduate Student Representative – UB CSE Diversity Committee, ‘19-‘20 Academic Year
- Secretary – UB CSE Graduate Student Association, ‘19-‘20 Academic Year
- Volunteer – UB Robotics Day ‘18

Brandeis University, Waltham, MA

- Microsoft Senior Student Partner – ‘16-‘17 Academic Year

- Microsoft Student Partner – ‘15-‘16 Academic Year
- Undergraduate Department Representative – Computer Science Dept, ‘15-‘16 Academic Year
- President – BITMAP (Computer Science Club), ‘14-‘16 Academic Years
- Lead Hackathon Organizer, Web Developer, and Designer – Codestellation (Brandeis’ Annual Hackathon), ‘14-‘16 Academic Years

WORK
EXPERIENCE

Google, Seattle, WA

Software Engineering Intern

Jun 2019 - Aug 2019

- Decreased user-perceived web page load latency in Chromium by developing a logistic regression model to predictively prefetch the page(s) that a user will likely navigate to next
- *C++, Python, Scikit-Learn, TensorFlow*

edX, Cambridge, MA

Software Engineer

Jun 2017 - Aug 2018

- Improved the performance, reliability, and maintainability of edX’s video encoding and delivery pipeline, mainly by implementing an API for AWS SNS notifications for video processing tasks, creating a local testing environment with Docker, and parallelizing video processing tasks
- Increased user first-week engagement by developing an API that tracks and displays user’s course completion data and running A/B tests on features that use the data
- Assisted with GDPR compliance
- Trained and mentored a summer intern
- *AWS {RDS, ec2, SNS }, Terraform, Docker, Python, SQL, MongoDB, Django, Javascript*

Software Engineering Intern

Jun 2016 - Aug 2016

- Improved accessibility of the edX platform for screen-reader and keyboard-only users, mainly through creating a new, entirely keyboard-accessible essay-writing module
- *Python, Django, Javascript*

Brandeis University, Waltham, MA

MakerLab Web Developer Team Lead

Sept 2016 - May 2017

- Designed, created, and maintained the MakerLab website, as well as websites and promotional materials for all MakerLab-sponsored events
- *Jekyll, Adobe {Photoshop, Illustrator, InDesign}*

Software Engineer for the Western Jihadism Project

Apr 2015 - May 2016

- Created a relational schema design, a user interface to access, search, and modify data, and a data visualization dashboard for the Brandeis Western Jihadism Project
- *Python, Django, postgres*

HONORS AND
AWARDS

Conference/Journal Awards: Best Poster (HotMobile ‘22)

Institutional Awards: Brandeis Departmental High Honors (‘17)

Travel Grants: Symposium on Edge Computing (SEC) ‘19, MobiCom ‘21, MobiSys ‘22

Hackathon Awards: Best Machine Learning Hack (Codestellation Fall ‘16), Best Artificial Intelligence Hack (HampHack ‘16)

SELECTED
PROJECTS

Anodize: language-level guarantees for mixed criticality systems. *Rust*

Real-Time Video Question Answering *Python*

Edge-Assisted Trackerless Augmented Reality *Java*

NashDB: automatic fragmentation, replication, and provisioning of elastic, cloud databases. *Java*

WiSDoM: a demo for WiSeDB, a machine learning approach for cost/performance management for cloud databases. *Java*

Edgar Allan Poetry: poetry generation with RNNs and Markov chains. Won Best Artificial Intelligence Hack at HampHack. *Python*