

# Sofiya Semenova

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## EDUCATION

**Ph.D. Student, Computer Science** University at Buffalo, Buffalo, NY Aug 2018 - current  
**B.S. (High Honors)** Brandeis University, Waltham, MA Aug 2013 - May 2017  
Major: Computer Science, Minor: Physics  
Thesis: *“Clouds That Think: Applications of Machine Learning Techniques for Elastic Databases”*

## EXPERIENCE

**Graduate Teaching Assistant** University at Buffalo, Buffalo, NY Aug 2018 - current  
– Graduate TA for Data Structures

**Software Engineer and Software Engineering Intern** edX, Cambridge, MA Jun 2016 - Aug 2016,  
Jun 2017 - Aug 2018  
– Full time engineer from June 2017 - Aug 2018, summer intern in 2016  
– Reduced operational complexity of VEDA, edX’s video encoding and delivery pipeline, through dockerization and the creation a staging environment  
– Implemented an API for AWS SNS notifications for processing video ingest tasks  
– Improved VEDA performance via parallelization of ingest tasks  
– Developed an API that tracks and displays users’ course completion data to increase user first-week engagement, and ran A/B tests on proposed features to use the data  
– Improved accessibility of the edX platform for screen-reader and keyboard-only users, mainly through creating a new, entirely keyboard-accessible essay-writing module  
– *Linux, AWS (RDS, ec2, SNS), Terraform, Docker, Python, SQL, MongoDB, Django, JavaScript*

**Web Developer Team Lead** Brandeis University MakerLab, Waltham, MA Apr 2015 - May 2017  
– Designed the websites and promotional material for the MakerLab and affiliated events  
– 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, Jekyll, Adobe*

**Software Engineering Intern** Onshape, Cambridge, MA Jun 2015 - Aug 2015  
– Added admin tools to the Onshape web app  
– Expanded automated end-to-end UI tests  
– *AngularJS, JavaScript*

**Undergraduate Teaching Assistant** Brandeis University, Waltham, MA Sept 2014 - Dec 2014  
– TA for Intro to Programming in Java

## SELECTED PROJECTS <https://sofiya.io/projects>

**Tidal to Spotify converter**, a set of utils to convert playlists and songs between Tidal and Spotify. *Python*

**NashDB**, an application to automatically fragment, replicate, and provision elastic, cloud databases. *Java*

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

**Cellular Ant-omata**, a program to randomly generate cellular automata. *Java*

**Edgar Allan Poetry**, a poetry generator using recurrent neural nets and Markov chains. Won Best Artificial Intelligence Hack at HampHack. *Python, vueJS*

## LEADERSHIP

**Computer Science Undergraduate Department Representative** Sep 2015 - May 2016  
Planned and coordinated departmental events for computer science majors.

**President of Brandeis’ Computer Science Club and Hackathon Organizer** Sep 2014 - May 2016  
President of Brandeis’ CS club. Lead designer and web developer for Brandeis’ hackathon.

## PUBLICATIONS

Ryan Marcus, Olga Papaemmanouil, Sofiya Semenova, and Solomon Garber. *“NashDB: An Economic Approach to Fragmentation, Replication and Provisioning for Elastic Databases.”* 37th ACM Special Interest Group in Data Management (SIGMOD) 2018.

Ryan Marcus, Sofiya Semenova, and Olga Papaemmanouil. *“A Learning-based Service for Cost and Performance Management of Cloud Databases (Demonstration).”* IEEE International Conference on Data Engineering (ICDE) 2017.