Teona Bagashvili

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Research Interests

Storage Systems, Databases, Flash Memory, Specialized Hardware

Education

2022 - present	**PhD** in Computer Science at **Boston University**	Boston, MA, USA
2018 - 2022	**BS** in Computer Science at **Allegheny College**	Meadville, PA, USA

Relevant Coursework

Embedded Systems Development, Data Systems Architecture, Graduate Databases

Work Experience

09/2022 - present	PhD researcher at **Boston University**	Boston, MA, USA
08/2021 - 12/2021	Researcher at **Massachusetts Institute of Technology**	Cambridge, MA, USA
06/2021 - 08/2021	Intern at **MIT** Summer Research program **MSRP**	Cambridge, MA, USA
01/2021 - 05/2021	Software development intern at **NetApp**	Pittsburgh, PA, USA
05/2020 - 08/2020	Researcher at Allegheny College (funded by **Mozilla** grant)	Meadville, PA, USA

Research Projects

SilentZNS: Designed and implemented a new zone management approach for Zoned Namespace (ZNS) SSDs to reduce device-level write amplification, wear, and I/O interference. The system dynamically allocates physical blocks to zones instead of using fixed mappings, maintaining parallelism and wear-leveling while minimizing redundant writes.

Restore: Collaborating on lightweight reinforcement learning framework for optimizing data placement across heterogeneous storage tiers (e.g., SSDs, NVMs, HDDs). The system dynamically learns workload patterns (access frequency, recency) and device characteristics (read/write asymmetry, internal parallelism) to place the data.

Relational Memory (RME): Collaborated on the FPGA-based accelerator that can provide applications with optimal data layout on the fly and demonstrated it's scalability with TPC-H benchmarks focusing on projecting, aggregation and join queries.

Publications and Talks

1. **Teona Bagashvili**, Tarikul Islam Papon, Manos Athanassoulis. *ACE-in-Action: A Smart DBMS Bufferpool for SSDs*. In *(**SIGMOD 2025**)*. Paper
2. **Teona Bagashvili**, Manos Athanassoulis. *ZNS SSDs: Architectural Insights and Performance analysis*. In *(**VLDB Summer School**), Poster Session*, **2024**. Event
3. Evan Hernandez, Sarah Schwettmann, David Bau, **Teona Bagashvili**, Antonio Torralba, Jacob Andreas. *Natural Language Descriptions of Deep Visual Features*. In *International Conference on Learning Representations(**ICLR**)*, **2021**. Paper
4. **Teona Bagashvili**, Gregory M. Kapfhammer. *Committing to writing good commit messages: Supporting the creation of human- and machine-readable commit messages with Python*. **PyCon** Light-

ning Talk Session, **2021**. Presentation

5. **Teona Bagashvili**, Evan Hernandez, Jacob Andreas. *Language Based Image Editing with Neuron Captions*. MIT Summer Research Program (**MSRP**) Poster Session, **2021**. Event

Teaching Experience

Boston University, Department of Computer Science

CAS CS 391: Computer and Memory Architectures (Teaching Fellow)	Fall 2025
CAS CS 561: Data Systems Architecture (Teaching Fellow)	Spring 2025
CAS CS 210: Computer Systems (Teaching Fellow)	Spring 2024, 2023, Fall 2023
CAS CS 111: Introduction to Computer Science (Teaching Fellow)	Summer 2023

Allegheny College, Department of Computer Science

CMPSC 100: Computational Expression (Technical Leader)	Fall 2019, Spring 2020
FS 101: First Year Seminar (Teaching Assistant)	Fall 2022

Awards and Honors

Cum Laude Graduation Honor in Bachelor's of Science	2022
Alden Scholar Dean's List for high academic achievement	2021-2022
International student award	Fall 2021

Events Attended

Northeast Database Day (**NEDB**)	2024
Dagstuhl Summer School	Summer 2024
VLDB Summer School	Summer 2024

Service and Mentoring

Boston University, Mentoring an undergraduate researcher in graph processing systems	Fall 2024
Boston University, MIDAS data systems seminar coordinator	Fall 2023, 2024
Meadville Area Middle School, MLK program mentor	Fall 2018
Culture to Culture program, Senior mentor and International student coordinator	Fall 2019, 2020
Allegheny College, Resident Advisor	Fall 2020