Jonathan Chamberlain, PhD

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Boston, MA

Summary

- Inquisitive engineer and Operations Research specialist with 13 years of industry and academic experience, the last 8 in problems of network economics, dynamic spectrum access, and cloud computing system design.
- Experienced in developing and analyzing system models, determining incentives for users to opt in or out of networks featuring a choice of priorities.
- Skilled technical communicator with 44 paper citations, an h-index of 5, and two IEEE conference runner-up awards (one as lead author).

Experience

- **Boston University Laboratory of Networking Information Systems (NISLAB)** — Boston, MA, USA

  Graduate Research Fellow — *Sep 2019 - May 2025*
  Graduate Student Lab Manager — *Jan 2024 - Apr 2025*
  Graduate Teaching Assistant — *Sep 2020 - May 2021*
  Graduate Research Assistant — *May 2018 - Aug 2019*

  Engaged in research related to Network Economics and Queuing Theory, investigating resource allocation problems in cloud computing and wireless networking, with a particular focus on co-existence of resources in Next Generation wireless networks between passive Earth-observing satellites and commercial users on the same frequencies. Additionally, managed inventory, equipment storage, and operational functionality of experimental equipment in the lab space, and served as teaching assistant for *Introduction to Computer Networking* and *Cloud Computing* courses under COVID conditions, and substitute guest lecturer for *Computer Communication Networks* on multiple occasions, covering for professor's absence.

  Notable Achievements:
  - Presented research results to internal and external audiences, including three IEEE and ACM conference appearances, multiple presentations to a project external funder, and a presentation of findings related to Citizens Broadband Radio Service (CBRS) economics to CTO team of a CBRS Spectrum Access System Vendor.
  - Mentored two undergraduate student assistants in running experiments supporting projects related to CBRS sensing and Economic Denial of Sustainability (EDoS) attacks in Kubernetes.
  - Published ten total papers; received 44 citations and one IEEE conference award consideration.
  - Additional contributions to two papers following departure from lab, based on work previously generated for spectrum sharing economics; received one IEEE conference award consideration.

- **IBM TJ Watson Research Center** — Yorktown, NY, USA

  Summer Research Intern — *May 2020 - August 2020*

  Engaged in development of queuing based models for resource allocations in environments featuring multiple Virtual Machine types, supporting IBM initiatives to optimize operational expenditures related to cloud offerings while balancing customer requirements.

  Notable Achievements:
  - Analyzed mathematical models for multiple-class VM environment where agents prioritize fastest completion time.
  - Presented research results to internal IBM team.

- **Hewlett Packard Enterprise** — Madison, WI, USA

  Business Analyst — *January 2014 - August 2016*

  Engaged in requirements gathering for updates to Wisconsin Immunization Registry (WIR) web application, in consultation with representatives from the Wisconsin Department of Health Services. Responsible for documentation of update proposals and technical details as well as Quality Assurance and functionality testing for application updates.

  Notable Achievements:
  - Supported the WIR Help Desk as Level 2 support, investigating issues reported by end users and consulting with developers to deliver bug fixes.

◦ Supported internal HPE teams as LAN Mentor, providing frontline support and liaising between employees and internal HPE IT staff.

- **Epic Systems Corporation** Verona, WI, USA
  Technical Services Analyst - HIM/Identity *September 2012 - November 2013*
  Worked with five of the largest hospital systems in the United States, investigating software issues reported by the client IT teams, identifying solutions and arranging for delivery of resolutions, including proper configuration of system profiles for accessing sensitive information, development of wrappers for backwards compatibility with legacy versions of Epic, and expedited development of bug fixes.

  Notable Achievements:
  ◦ Diagnosed and tested fix to issue involving compromised Release of Information reports in sixty-minute span for clients with a shared Epic instance stemming from erroneous client-side records update from other side of shared instance.
  ◦ Identified cause of patient merging issue stemming from another team's report development updates threatening to cause an Out of Memory error for systems managing multiple hundreds of thousands of patient files.
  ◦ Updated clinician profiles to properly secure access to high profile or sensitive patients after identifying documentation flaw resulting in inverted access configurations.

Skills

- **Technical Skills:** Operations Research, Game Theory, Mathematical Modeling, Wireless Communication Systems
- **Software:** Python, C++, MATLAB, Simulink, Docker, Kubernetes, OpenStack/OpenShift, Debian-based Linux, Windows, SQL
- **Process Management:** Project Management, Requirements Gathering, Technical Troubleshooting, Quality Assurance, Agile (Scrum), Customer Support, University Lecturing
- **Languages:** English (Native)

Education

- **Boston University College of Engineering** Boston MA, United States
  Doctor of Philosophy, Computer Engineering *September 2019 - May 2025*
  ◦ Laboratory of Networking Information Systems (NISLAB)
  ◦ Advisor: Prof. David Starobinski
  ◦ Dissertation: Economic Frameworks for Spectrum Coexistence in Advanced Wireless Networks

- **Boston University College of Engineering** Boston MA, United States
  Master of Science, Systems Engineering *September 2016 - May 2019*
  ◦ Advisor: Prof. David Starobinski
  ◦ Thesis: Strategic Behavior and Revenue Management of Cloud Services with Reservation-Based Preemption of Customer Instances

- **Boston University College of Arts and Sciences** Boston MA, United States
  Bachelor of Arts, Mathematics *September 2008 - May 2012*
  ◦ Graduated *Magna Cum Laude* with Distinction
  ◦ Completed College of Arts and Sciences Honors Program

Certifications

- **Akamai on Coursera** Online
  Akamai Network Engineering Professional Certificate *In Progress*

- **University of Glasgow on Coursera** Online
  6G for a Connected Future Certification *October 2025*

Honors and Awards

- **Runner Up, Technical Track Best Paper** *May 2026*
  2026 IEEE International Symposium on Dynamic Spectrum Access Networks (DySPAN)
  ◦ Awarded for paper "Modeling Microwave Radiometer Sensing Performance as a Function of Spectrum Use" presented at 2026 DySpan Conference.
- **Doctoral Achievement Award** *May 2025*
  Boston University Department of Electrical and Computer Engineering
  ◦ Awarded for all around excellence in teaching, research, and service amongst the 2024-25 Ph.D. graduates from the BU ECE Department.
- **Runner Up, Policy Track Best Paper** *May 2024*
  2024 IEEE International Symposium on Dynamic Spectrum Access Networks (DySPAN)
  ◦ Awarded for paper "Spectrum Sharing between Earth Exploration Satellite and Commercial Services: An Economic Feasibility Analysis" presented at 2024 DySpan Conference.
- **Robert E Bruce Prize for Excellence in Mathematics** *May 2012*
  Boston University Department of Mathematics & Statistics
  ◦ Awarded to graduating Bachelor's students demonstrating strong academic records in the field of Mathematics.

Professional Affiliations

- **ACM,** Member *April 2025 - Present*
- **IEEE,** Member Communications Society *July 2024 - Present*

Presentations

[1] **Jonathan Chamberlain**, Nicholas Brendle, David Starobinski, Joel T Johnson. (2024). "Facilitating Novel Modalities for Spectrum Sharing between Earth-Observing Microwave Radiometers and Commercial Users". Poster Presentation for *NSF Spectrum and Wireless Innovation enabled by Future Technologies (SWIFT)* Principal Investigator meeting.

[2] **Jonathan Chamberlain**, Zhenpeng Shi. (2020). "Strategic Management Of Shared Cloud Services". Microtalk for the 2020 *Open Cloud Workshop*.

Peer-Reviewed Publications

[1] Nicholas Brendle, **Jonathan Chamberlain**, Joel T Johnson, David Starobinski. (2026). "Modeling Microwave Radiometer Sensing Performance as a Function of Spectrum Use." In *2026 IEEE International Symposium on Dynamic Spectrum Access Networks (DySPAN)*. 11-14 May 2026, Washington DC, USA.

[2] Nicholas Brendle, **Jonathan Chamberlain**, Joel T Johnson, David Starobinski. (2026). "Geographic and Statistical Analysis of EESS-Passive Satellite Overpasses for Spectrum Coexistence". *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (J-STARS)*. Vol. 19, pp. 13364-13376. DOI: 10.1109/JSTARS.2026.3681270

[3] Zeying Zhu, **Jonathan Chamberlain**, Kenny Wu, et al. (2025). "Approximation-First Timeseries Query At Scale". *Proceedings of the VLDB Endowment*, Vol. 18, Issue 8, pp. 2348 - 2361. DOI: 10.14778/3742728.3742732

[4] **Jonathan Chamberlain**, Jilin Zheng, Zeying Zhu, et al. (2025). "Exploiting Kubernetes Autoscaling for Economic Denial of Sustainability". *Proceedings of the ACM on Measurement and Analysis of Computing Systems*, Vol. 9, Issue 2, pp. 1-29. DOI: 10.1145/3727114

[5] Nicholas Brendle, **Jonathan Chamberlain**, Joel T Johnson, David Starobinski. (2025). "Advancing Spectrum Sharing through Statistical Analysis of EESS-Passive Satellite Overpasses".In *2025 IEEE International Symposium on Dynamic Spectrum Access Networks (DySPAN)*, pp. 61-68. 12-15 May 2025, London, United Kingdom. DOI: 10.1109/DySPAN64764.2025.11115963

[6] **Jonathan Chamberlain**, David Starobinski, Joel T Johnson. (2024). "Facilitating Spectrum Sharing with Passive Satellite Incumbents". *IEEE Journal on Selected Areas in Communications (JSAC)*, Vol. 42, Issue 12, pp. 3719-3733. DOI: 10.1109/JSAC.2024.3459034

[7] Nicholas Brendle, Joel T Johnson, David Starobinski, **Jonathan Chamberlain**. (2024). "Estimating the Retrieval Performance of Passive Remote Sensing Under Alternate Spectrum Sharing Scenarios". In *IGARSS 2024 - 2024 IEEE International Geoscience and Remote Sensing Symposium*, pp. 753-755. IEEE. 07-12 July 2024, Athens, Greece. DOI: 10.1109/IGARSS53475.2024.10640738

[8] **Jonathan Chamberlain**, Joel T Johnson, David Starobinski (2024). "Spectrum Sharing between Earth Exploration Satellite and Commercial Services: An Economic Feasibility Analysis". In *2024 IEEE International Symposium on Dynamic Spectrum Access Networks (DySPAN)*, pp. 197-206. IEEE. 13-16 May 2024, Washington DC, USA. DOI: 10.1109/DySPAN60163.2024.10632841

[9] **Jonathan Chamberlain**, David Starobinski. (2022). "Game Theoretic Analysis of Citizens Broadband Radio Service". In *2022 20th International Symposium on Modeling and Optimization in Mobile, Ad hoc, and Wireless Networks (WiOpt)*, pp. 314-321. IEEE. 19-23 September 2022, Torino, Italy. DOI: 10.23919/WiOpt56218.2022.9930583

[10] **Jonathan Chamberlain**, Eran Simhon, David Starobinski. (2021). "Preemptible Queues with Advance Reservations: Strategic Behavior and Revenue Management". *European Journal of Operational Research (EJOR)*, Vol. 293, Issue 2, pp. 561-578. DOI: 10.1016/j.ejor.2020.12.044

[11] **Jonathan Chamberlain**, David Starobinski. (2021). "Strategic Revenue Management of Preemptive versus Non-Preemptive Queues". *Operations Research Letters*, Vol. 49, Issue 2, pp. 184-187. DOI: 10.1016/j.orl.2020.12.011

[12] **Jonathan Chamberlain**, David Starobinski. (2020). "Social Welfare and Price of Anarchy in Preemptive Priority Queues". *Operations Research Letters*, Vol. 48, Issue 4, pp. 530-533. DOI: 10.1016/j.orl.2020.05.015

Community Involvement

- **Technical Program Committee Member** *2026*
  ACM SIGMETRICS
- **Peer Reviewer** *2025-present*
  IEEE Transactions on Cognitive Communications
- **Organizing Committee Member** *2024-2025*
  Boston University CISE Graduate Student Workshop
- **Project Co-Mentor** *2020*
  Boston University Cloud Computing Course (EC 528)
- **College of Engineering Representative** *2018-2021*
  Boston University Graduate Student Advisory Board
- **Executive Board Member** *2017-2021*
  Boston University Student Association of Graduate Engineers