Daniel L. Carstensen

Brown University
Cognitive and Psychological Sciences
190 Thayer Street, Providence, RI 02912, USA

daniel_carstensen@brown.edu
danielcarstensen.com

Education

Sep 2020 – Jun 2024	**Dartmouth College**, Hanover, NH, USA B.A. in Mathematical Data Science with High Honors, Minor in CS GPA: 3.97, Summa cum Laude, Phi Beta Kappa *Thesis:* Translating EEG recordings into dynamic estimates of conceptual knowledge and learning (Advisors: Jeremy Manning and Peter Mucha)
Sep 2011 – Jun 2019	**Maximiliansgymnasium München**, Munich, Germany Abitur

Research Experience

Aug 2024 – Present	**Lab Manager and Research Assistant**, Favila Lab Brown University, Department of Cognitive and Psychological Sciences (PI: Serra Favila) *Details:* Investigating the adherence of DNN embedding spaces to Shepard's universal law of generalization using large-scale naturalistic image datasets.
Feb 2024 – Present	**Research Assistant**, Dartmouth Lab for Mind, Brain, and Computation Dartmouth College, Department of Cognitive Science (PI: Steven Frankland) *Details:* Collaborator on project investigating Shepard's law in DNNs (see above).
Jan 2021 – Present	**Research Assistant**, Contextual Dynamics Lab Dartmouth College, Department of Psychological and Brain Sciences (PI: Jeremy Manning)

Details: Used EEG to dynamically estimate conceptual knowledge during learning, leading a team of 3 RAs. Evaluated higher-order correlations for time-series forecasting (stock/fMRI data).

Apr 2024 – Apr 2025 **Research Assistant**, Venkatesh Lab

Brigham and Women's Hospital and Harvard Medical School (PI: Humsa Venkatesh)
Details: Analyzed novel ECoG recordings of neuronal activity from skin tumors in mice.

Jan 2023 – Sep 2024 **Research Assistant**, Minds, Machines, and Society Group

Dartmouth College, Department of Computer Science (PI: Soroush Vosoughi; External Advisor: Asha Zimmerman, MD)
Details: Applied ML/DL to predict organ transplant compatibility using DonorNet data.

Jun 2022 – Sep 2022 **Research Assistant**

Dartmouth College, Department of Mathematics (PI: Yoonsang Lee)
Details: Optimized network structure of a two-level physics-informed neural network (PINN) to accelerate convergence for approximating high-frequency components of Fourier feature embedded PDEs.

Conference Presentations

†denotes equal contribution

Posters

Carstensen, D. L., †Frankland, S. M., & †Favila, S. E. (Apr 2025). Generalization Gradients in Deep Vision Models: Insights from Shepard's Universal Law of Generalization. Poster at *Cognitive Neuroscience Society*, Boston, MA.

Carstensen, D. L., Manning, J. R., & Mucha, P. (May 2024). Translating Neurophysiological Recordings Into Dynamic Estimates of Conceptual Knowledge and Learning. Poster at *Wetterhahn Science Symposium*.

†Jha, K., †**Carstensen, D. L.**, Patel, A., & Manning, J. R.(May 2023). Translating Neurophysiological Recordings Into Dynamic Estimates of Conceptual Knowledge and Learning. Poster at *Wetterhahn Science Symposium*.

Talks

2025 Lab meeting (PI: Thomas Serre), Brown University, Providence, RI.

Honors, Awards, and Scholarships

Jul 2024	Rufus Choate Scholar, awarded to the top 5% of all students of the previous academic year.
Jun 2024	Randolph and Christine Burnley Bucklin Prize at the Undergraduate Poster Session of Dartmouth's Department of Mathematics.
Jan – Jun 2024	Lovelace Scholar, two-term funded research scholarship: $2,400.
Sep – Nov 2023	Neukom Scholar, one-term funded research scholarship: $1,200.
Aug 2023	3rd Honors Group, awarded to the top 35% of all students of the previous academic year.
Mar – Jun 2023	URAD Scholar, one-term funded research scholarship: $1,200.
Apr 2023	Citation for Academic Excellence in Computer Vision (CS83).
Jan – Mar 2023	URAD Scholar, one-term funded research scholarship: $1,200.
Feb 2022	Citation for Academic Excellence in Artificial Intelligence (CS76).
Jun 2022	2nd Honors Group, awarded to the top 15% of all students of the previous academic year.
Jul 2022	Citation for Academic Excellence in Machine Learning and Statistical Data Analysis (CS74).
Mar – Jun 2022	URAD Scholar, one-term funded research scholarship: $1,000.
Jan – Mar 2022	URAD Scholar, one-term funded research scholarship: $1,000.
Sep – Nov 2021	URAD Scholar, one-term funded research scholarship: $1,000.
Jul 2021	Rufus Choate Scholar, awarded to the top 5% of all students of the previous academic year.
Jun 2019	German Physical Society Abiturprize with distinction, awarded to the top-performing student in physics of a graduating class.

Professional Experience

Sep 2022 – Jun 2024	**Data Scientist**, DALI Lab, Dartmouth College, Hanover, NH, USA *Roles:* Data Team Lead (Mar 2023 – Jun 2024), Data Science Mentor (Nov 2022 – Jun 2024), Member (Sep 2022 - Nov 2022) *Details:* Led data team operations, project sourcing, hiring, and mentorship. Developed computer vision models for barnacle identification in NPS project (see here).
Jun 2023 – Sep 2023	**Data and Analytics Intern**, Upvest GmbH, Berlin, Germany *Details:* Built custom Jupyter Docker image with CI/CD deployment via Github Actions to GCP. Optimized Python trading simulation for time efficiency. Streamlined SQL ETL codebase. Supported stakeholders with data analysis dashboards and alerts.
Jun 2022 – Sep 2022	**Machine Learning Research Intern**, SINC GmbH, Wiesbaden, Germany *Details:* Developed ML-based fraud detection software for German health insurance providers.

Teaching Experience

Fall 2023	**Teaching Assistant**, Artificial Intelligence (CS76) Dartmouth College, Department of Computer Science (Instructor: Devin Balkcom)
Fall 2023	**Individual Tutor**, Introduction to Linear Models (MATH50) Facilitated by the Peer Tutoring Program, Dartmouth College, Department of Mathematics (Instructor: Ethan Levien)
Winter 2023	**Teaching Assistant**, Machine Learning and Statistical Data Analysis (CS74) Dartmouth College, Department of Computer Science (Instructor: Soroush Vosoughi)
Winter 2023	**Individual Tutor**, Data Visualization (QSS17) Facilitated by the Peer Tutoring Program, Dartmouth College, Program in Quantitative Social Sciences (Instructor: Robert Cooper)

Activities and Service

2025	Ad Hoc Reviewer, Cognitive Computational Neuroscience conference
2025	Volunteer, Brown Brain Fair
2024 – Present	Member, Diversity & Inclusion Action Plan (DIAP) subcommittee on Department Culture & Climate
2023	Facilitator, DALI Lab community data science workshops
2023 – 2024	Undergraduate Advisor
2023 – 2024	Participant, Dartmouth Directed Reading Program (Topics: Group Theory and Lie Algebra; Bayesian Inference and MCMC)
2022	Lead Developer, Dartmouth TAMID Tech Track

Professional Associations

Association for the Advancement of Artificial Intelligence
Cognitive Neuroscience Society
Cognitive Science Society
Organization for Computational Neuroscience
Phi Beta Kappa
Sigma Xi

Skills

Computational: Python (incl. Scikit-Learn, PyTorch, TensorFlow, OpenCV, PsychoPy), R (incl. Tidyverse), SQL, Java, Docker, Git, Bash, HPC
Laboratory: EEG trained, fMRI trained

Last updated: April 14, 2025