Paxton Fitzpatrick

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EDUCATION

Dartmouth College, Hanover, NH **2015 – 2019**

Bachelor of Arts: *Neuroscience with Honors*

Honors Thesis: *Capturing the evolving geometric and neural Structures of experiences and memories*

RESEARCH EXPERIENCE

Contextual Dynamics Lab, Hanover, NH **March 2017 –**

Lab Manager *June 2018 –*

- Design, conduct, analyze, and publish novel studies on human memory
- Develop and maintain multiple open-source software tools
- Assist in writing grant applications, study protocols, and annual reports
- Train other lab and department members on software tools and research practices

Research Assistant *March 2017 – June 2018*

- Collected and analyzed human subject data for multiple projects
- Co-authored multiple research articles and software packages
- Presented research at local and international conferences
- Assisted in maintaining lab computing environment

Bregman Media Labs, Hanover, NH **March 2017 – July 2017**

Research Assistant

- Developed pipeline for wireless translation of EEG data to real-time audio synthesis
- Co-created the first direct brainwave sonification-based musical ensemble
- Created interactive EEG-driven "paint your brain" exhibit
- Maintained software package for audio-visual feature extraction and analysis

Dartmouth Brain Imaging Center, Hanover, NH **September 2016 – June 2019**

Research Assistant

- Operated Siemens Prisma 3T fMRI scanner and periphery equipment (100+ hours)
- Designed stimuli for imaging and behavioral
- Created automated pipelines for data processing and BIDS formatting

PUBLICATIONS & PRESENTATIONS

Manuscripts

Heusser A. C.[†], **Fitzpatrick P. C.** [†]**,** Manning J.R. (under revision). How is experience transformed into memory?. *bioRxiv*: 409987.

Ziman K., Heusser A. C., **Fitzpatrick P. C.**, Field C. E., Manning J. R. (2018). Is automatic speech-to-text transcription ready for use in psychological experiments?. *Behavior research methods*, 1-9.

Heusser A. C., **Fitzpatrick P. C.**, Field C. E., Ziman K., Manning J. R. (2017). Quail: a Python toolbox for analyzing and plotting free recall data. The Journal of Open Source Software, 2(18): 424.

Software

Heusser A. C., Ziman K., **Fitzpatrick P. C.**, Field C. E., Manning J. R. (2017) AutoFR: a scalable verbal free recall experiment with automatic speech-to-text transcription. GitHub.

Heusser A. C., **Fitzpatrick P. C.**, Field C. E., Ziman K., Manning J. R. (2017) Quail: a Python toolbox for analyzing and plotting free recall data. GitHub.

Abstracts & Poster Presentations

Fitzpatrick P. C., Heusser A. C., Manning J. R. (2019). Exploring the evolving geometric structure of experiences and memories. *Society for Neuroscience Annual Meeting*. Chicago, IL.

Fitzpatrick P. C., Heusser A. C., Manning J. R. (2019). Capturing the evolving geometric and neural structures of experiences and memories. *Wetterhahn Science Symposium*. Hanover, NH.

Fitzpatrick P. C., Heusser A. C., Manning J. R. (2018). Mapping between naturalistic experience and verbal recall. *Society for Neuroscience Annual Meeting*. San Diego, CA.

Heusser A. C., **Fitzpatrick P. C.**, Manning J. R. (2018). Capturing the geometric structure of our experiences and how we remember them. *Conference on Cognitive Computational Neuroscience*. Philadelphia, PA.

Fitzpatrick P. C., Ziman, K., Heusser, A. C., Field, C. E., Manning, J. R. (2018). The utility of speech-to-text software for transcription of verbal response data. *Wetterhahn Science Symposium*. Hanover, NH.

Lee M., Chacko R., Whitaker E., **Fitzpatrick P. C.**, Field C. E., Ziman K., Bollinger B., Heusser A. C., Manning J. R. (2018). Adaptive free recall: Enhancing (or diminishing) memory. *Wetterhahn Science Symposium*. Hanover, NH.

Ziman K., Heusser A. C., **Fitzpatrick P. C.**, Field C. E., Manning J. R. (2018). Is automatic speech-to-text transcription ready for use in psychological experiments?. *Context and Episodic Memory Symposium*. Philadelphia, PA.

[†]Denotes equal contribution

AWARDS & HONORS

Methods in Neuroscience at Dartmouth (MIND) attendee	**July 2019**
Lt. William Brewster Nickerson 1964 Psychology and Brain Sciences Prize	**May 2019**
Robert N. Leaton Prize for Best Neuroscience Thesis	**May 2019**
Sigma Xi Scientific Research Honors Society, Associate Member	**May 2019**
Dartmouth Tutor Spotlight award	**March 2019**
Undergraduate Research Senior Conference Grant award	**August 2018**
Citation for Meritorious Performance – Systems Neuroscience with Laboratory	**May 2018**

TEACHING & MENTORSHIP

Storytelling with Data (TA)	**Spring 2020**
Intro to Programming for Psychological Scientists (TA & Guest Lecturer)	**Winter 2020**
Human Memory (TA)	**Fall 2019**
Intro to Programming and Computation (Private Tutor)	**Fall 2018 – Spring 2019**

Research Mentees

William Baxley, Shane Park, Chelsea Uddenberg, Esme Chen

SKILLS & CERTIFICATIONS

Programming Languages

Python, JavaScript, Bash/Zsh, TeX, SuperCollider

Web Development

HTML, CSS (+ SASS, SCSS), Markdown, Bootstrap, Jekyll

Development Tools

Git/GitHub, Docker, SQLite/MySQL/SQLAlchemy, Travis CI, Conda, IPython (Jupyter, Colaboratory), Python packaging (setuptools, pytest, pip)

Experimental Design & Stimulus Presentation

JsPsych, psiTurk, Amazon Mechanical Turk, SuperLab, PsychoPy, OpenSesame, Morrkross MorphX

Data Analysis

SciPy, NumPy, Pandas, Scikit-learn, statsmodels, Nilearn, FSL, BORIS, ANVIL, high-performance computing (Moab, TORQUE, Portable Batch System)

Data Visualization

Matplotlib, Seaborn, Plotly, Hypertools

Non-technical

Adobe Illustrator, Adobe Photoshop, French (fluent), scientific & expository writing, public speaking, organizational leadership

SERVICE

Storytelling with Data Social Impact Practicum **March 2019 – June 2019**

Data Analyst and Presenter

- Compiled and analyzed historic donation data for the Upper Valley Land Trust
- Modeled future trends in donor behavior, retention, and solicitation efficacy
- Delivered recommendations on focusing and refining advertising to UVLT directorate

Neuromarketing Social Impact Practicum **January 2019 – March 2019**

Data Analyst and Presenter

- Co-created improved monthly newsletter for Hartford Autism Regional Program
- Collected and analyzed biometric data to evaluate and optimize newsletter design
- Prepared, presented, and delivered product redesign and findings to HARP Director

Oxfam Club at Dartmouth **September 2016 – September 2018**

President and Co-founder

- Founded and managed chapter of international NGO focused on socioeconomic injustice
- Organized silent auction that raised over $8,000 for local and regional refugee groups
- Brought speakers to campus to hold discussions on topical issues of social inequality