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