# Max Thomas Curran

School of Information University of California, Berkeley South Hall Berkeley, CA 94720-4600

mtcurran@ischool.berkeley.edu maxtcurran.com

# Education

### Ph.D., Information Management & Systems

School of Information, University of California, Berkeley – Berkeley, CA

- Focus areas: Digitally-mediated empathy, biosensory computing, human-computer interaction
- Interdisciplinary quantitative & qualitative research methods training
- Selected courses: User Interface Design and Development, Needs and Usability Assessment. Information Visualization and Presentation, Web Architecture, Applied Machine Learning
- Advisor: John Chuang

### Certificate, Computer Science

Boston University – Boston, MA

Courses: Programming in C++, Data Structures, Discrete Mathematics, Computer Architecture

### B.S., Physics and Astronomy

University of Massachusetts, Amherst - Amherst, MA

- Double major in astronomy and physics, minor in Japanese language and culture
- Graduated Magna Cum Laude with Departmental Honors
- Commonwealth Honors College Scholar with Great Distinction

### Skills

- User Experience: Experimental design and implementation, qualitative interviewing, survey design, usability testing, contextual inquiry, wireframing & prototyping, affinity diagramming
- Programming: Python (Pandas, Scikit-Learn, SciPy, NumPy), R, HTML/CSS/JavaScript, NodeJS, C++, Unix shell, MatLab, LaTeX
- Software: Unity, Tableau, Adobe Suite, Graphpad Prism, SPSS, REDCap, Solidworks, FSL
- Foreign languages: Japanese (working proficiency), Spanish (elementary proficiency)
- Other: CITI Human Subjects Research certified, certified MRI Scanner

# **Research & Teaching Experience**

### Graduate Student Researcher

University of California, Berkeley – Berkeley, CA

- Lead and assist in executing research projects around biosensing, e.g. assessing the potential of ear EEG data for a multi-factor authentication paradigm and building physiological/behavioral profiles using virtual reality for privacy and security related outcomes
- Primary supervisors: John Chuang, PhD, Coye Cheshire, PhD

### UX Researcher Intern

Facebook – Seattle, WA

- Summer internship with the Real Time Communication (RTC) team under the Messenger org
- Worked closely with a cross-functional team to understand current questions and develop research project plans aimed at understanding critical highly engaged users segment

Fall 2008 - Spring 2012

Fall 2013 - Spring 2015

Fall 2015 – Summer 2020 (expected)

August 2015 – Present

May 2019 – August 2019

- Employed literature review, log analysis, survey, and interview user research methods
- Communicated findings and recommendations to product team, stakeholders and other UX researchers
- Primary supervisor: Kristen Kersh

#### Graduate Student Instructor, "Social Psychology and Information Technology" Spring 2019 University of California, Berkeley – Berkeley, CA

- Co-instructor for graduate-level project-based course covering theories from social psychology and applications to technology systems
- Led discussions in class on lecture materials
- Worked with students to guide semester-long projects & provided feedback on assignments
- Two guest lectures on "Empathy and Technology" \_
- Primary Supervisor: Coye Cheshire, PhD

### **UX Researcher Intern**

Facebook – Menlo Park, CA & Seattle, WA

- Summer internship with the People Products team under the Enterprise Engineering org
- Worked closely with product team and other stakeholders planning and carrying out user research to improve product's foundational information architecture and usability
- Employed survey, card sort, usability testing, and interview user research methods
- Communicated findings and recommendations to product team, stakeholders and other UX researchers
- Primary supervisor: Carol Farnsworth \_

### Graduate Student Instructor, "Humans, Sensors, Data, & Apps"

University of California, Berkeley – Berkeley, CA

- Teaching assistant for graduate-level project-based course covering aspects of ubiguitous & biosensing computing, affective computing, signal processing, and user experiments with sensors
- Worked with students to guide month-long projects & provided feedback on assignments
- Guest lecture on "Experimental Design & PsychoPy"
- Held office hours to discuss course material and projects & supervised virtual reality system use
- Primary Supervisor: John Chuang, PhD

### **Research Assistant**

Palo Alto Research Center (PARC) – Palo Alto, CA

- Conducted and analyzed interviews with participants around privacy attitudes and thoughts toward advanced internet services that collect and share information about users
- Primary supervisor: Victoria Bellotti, PhD

### **Technical Assistant**

Massachusetts General Hospital-Harvard Center for Addiction Medicine – Boston, MA

- Programmed, tested, and maintained original and existing computer task paradigms in PyGame and PyschoPy for use in and outside of an fMRI environment for multiple research studies
- Performed neuroimaging data analysis including functional connectivity MRI, task-based fMRI, and anatomical MRI using a combination of software tools and shell scripting
- Prepared and analyzed research data for grant applications, publications, and presentations \_
- Consented and ran study participants through fMRI scan study protocols
- Primary supervisors: Jodi Gilman, PhD, Luke Stoeckel, PhD, and A. Eden Evins, MD, MPH

### **Research Assistant**

National Astronomical Observatory of Japan – Nobeyama, Japan & Mitaka, Japan

Conducted and analyzed observations of distant galaxy at the Nobeyama 45 meter radio telescope aimed at determining galactic redshifts via blind wideband CO transition searches

May 2018 – August 2018

June 2013 – July 2015

August 2012 - April 2013

Fall 2016

July 2016 - September 2016

- Worked concurrently as a member of the Multi-Color TES (Transition Edge Sensor) Bolometer Camera Team responsible for designing and drafting an optics addition to the testing apparatus
- Primary supervisor: Daisuke Iono, PhD

Undergraduate Honors Capstone Thesis

August 2010 - May 2012

University of Massachusetts Amherst – Amherst, MA

- Honors thesis entitled "Spatial and Spectral Analysis of Blended Spitzer MIPS and Herschel PACS & SPIRE Counterparts to AzTEC Detected Sources"
- Programmed original routines in IDL to manipulate images and plots, convert coordinates, perform 2-D Gaussian statistics, output results, and be user-friendly for use by other students
- Continued work through summer 2011 Five College Astronomy Department REU Program
- Final thesis recommended and accepted to the university's student thesis archive
- Primary supervisor: Min S. Yun, PhD

# **Grants & Awards**

<u>School of Information Outstanding Graduate Student Instructor Award</u>	2020
- Awarded for teaching in spring 2019 course "Social Psychology and Information Technolog	y"
<ul> <li><u>UC Berkeley Center for Long-term Cybersecurity Grant Awardee</u></li> <li>Co-grantee with John Chuang and Jeremy Gordon, \$100,000 award for project titled "Cove</li></ul>	2019
embodied choice: using physiology tracking in VR to explore the limits of privacy during dee	ert
making"	cision-
<ul> <li><u>Best Student Paper Award at the Conference on Physiological Computing Systems</u></li> <li>Awarded for paper titled "Exploring the Feasibility and Performance of One-step Three-fact</li></ul>	2018
Authentication with Ear-EEG"	or
Facebook Research Funding Gift Recipient – Funding received for proposal titled "Investigating Computer-Mediated Empathy"	2017
National Science Foundation Graduate Research Fellowship Program Honorable Mention	2016
– NSF GRFP proposal titled "Investigating Sensor-Mediated Empathy in Virtual Reality Expension	riences"
<ul> <li><u>UC Berkeley Center for Long-term Cybersecurity Inaugural Grant Awardee</u></li> <li>BioSENSE research group awarded \$100,000 to execute projects about 'Security and Priva Biosensing at Scale'</li> </ul>	2016 acy of
MGH Clinical Research Day Department Poster Award in Psychiatry	2014
– Awarded for poster titled "Neural Activation to Social Influence in Young Adult Cannabis Us	sers"
<ul> <li>Partners in Excellence Team Award</li> <li>Awarded as a member of the MGH-Harvard Center for Addiction Medicine in recognition of outstanding performance and commitment to excellence</li> </ul>	2013
Massachusetts Space Grant Consortium Funding Award	2011
– Received funding for undergraduate research in the Five College Astronomy Department R	EU
<u>William F. Field Alumni Scholarship Awardee</u> – College of Natural Sciences scholarship awarded to an academically distinguished student	2010

# **Publications and Presentations**

**Journal Articles & Conference Papers** (<sup>#</sup>Presenting author(s), \*Authors contributed equally)

**Curran, M.T.**<sup>#</sup>, Gordon, J.R., Lin, L., Sridar, P.K., Chuang, J. Understanding Digitally Mediated Empathy: An Exploration of Visual, Narrative, and Informational Cues. Paper presented at the 2019 CHI Conference on Human Factors in Computing Systems (CHI '19), May 2019.

Merrill, N., **Curran, M.T.**, Gandhi, S., Chuang, J. One-Step, Three-Factor Passthought Authentication Using Custom-Fit, In-Ear EEG. *Frontiers in Neuroscience*. April 2019.

**Curran, M.T.**<sup>#</sup>, Merrill, N., Gandhi, S., Chuang, J. Exploring the Feasibility and Performance of One-step Three-factor Authentication with Ear-EEG. Paper presented at the 5<sup>th</sup> International Conference on Physiological Computing Systems (PhyCS '18), September 2018.

Merrill, N.<sup>#</sup>, **Curran, M.T.**, Chuang, J. Is the Future of Authenticity All in Our Heads?. Paper presented at the New Security Paradigms Workshop (NSPW '17), October 2017.

**Curran, M.T.**<sup>#</sup>, Yang, J., Merrill, N., Chuang, J. Passthoughts Authentication with Low Cost EarEEG. Paper presented at the 38<sup>th</sup> Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC '16), August 2016.

Merrill, N.<sup>#</sup>, **Curran, M.T.**, Yang, J., Chuang, J. Classifying Mental Gestures with In-Ear EEG. Paper presented at the 13<sup>th</sup> Annual International IEEE Body Sensor Networks Conference (BSN '16), June 2016.

Gilman, J.M., Schuster, R.M., **Curran, M.T.**, Calderon, V., Van der Kouwe, A., Evins, A.E. Neural Mechanisms of Sensitivity to Peer Information in Young Adult Cannabis Users. *Cognitive, Affective, & Behavioral Neuroscience*, April 2016.

Gilman, J.M., **Curran, M.T.**, Calderon, V., Schuster, R.M., Evins, A.E. Altered Neural Processing to Social Exclusion in Young Adult Marijuana Users. *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging*, March 2016.

Gilman, J.M., Treadway, M.T., **Curran, M.T.**, Calderon, V., Evins, A.E. Effect of Social Influence on Effort-Allocation for Monetary Rewards. *PLoS ONE*, May 2015.

Gilman, J.M., Calderon, V., **Curran, M.T.**, Evins, A.E. Young Adult Cannabis Users Report Greater Propensity for Risk-Taking Only in Non-Monetary Domains. *Drug and Alcohol Dependence*, February 2015.

Gilman, J. M., **Curran, M.T.**, Calderon, V., Stoeckel, L.E., Evins, A.E. Impulsive Social Influence Increases Impulsive Choices on a Temporal Discounting Task in Young Adults. *PLoS ONE*, July 2014.

Takuma, I., Kohno, K., Martín, S., Espada, D., Harada, N., Matsushita, S., Hsieh, P., Turner, J. L., Meier, D.S., Schinnerer, E., Imanishi, M., Tamura, Y., **Curran, M.T.**, Doi, A., Fathi, K., Krips, M., Lundgren, A. L., Nakai, N., Nakajima, T., Regan M.W., Sheth, K., Takano, S., Taniguchi, A., Terashima, Y., Tosaki, T., Wiklind, T. Submillimeter ALMA Observations of the Dense Gas in the Low-Luminosity Type-1 Active Nucleus of NGC1097. *Publications of the Astronomical Society of Japan*, October 2013.

### **Poster and Oral Presentations**

**Curran, M.T.**<sup>#</sup>, Merrill, N., Gandhi, S., Chuang, J. One-Step, Three-Factor Authentication in a Single Earpiece. Poster presentation at the International Joint Conference on Pervasive and Ubiquitous Computing (Ubicomp '17). Maui, HI. September 2017.

Gilman, J.M., Calderon, V.<sup>#</sup>, **Curran, M.T.<sup>#</sup>**, Evins, A.E. Young Adult Cannabis Users Report Greater Propensity for Risk-Taking Only in Non-Monetary Domains. Poster presentation at the Annual Harvard Psychiatry Research Day. Boston, MA. April 2015.

Gilman, J.M., Wighton, P.<sup>#</sup>, **Curran, M.T.**, Lee, S., Thompson, T., de los Angeles, C.S., van der Kouwe, A., Ghosh, S., Stoeckel, L.E. Modulation of Visual Attention of Blended Faces and Scenes in the FFA and PPA. Poster presentation at the Real-time Functional Imaging and Neurofeedback conference. Gainesville, FL. February 2015.

Wighton, P.<sup>#</sup>, Gilman, J.M., **Curran, M.T.**, Lee, S., Thompson, T., de los Angeles, C.S., Ghosh, S., Stoeckel, L.E., van der Kouwe, A. Designing a Successful rtfMRI Experiment: Theoretical Considerations. Poster presentation at the Real-time Functional Imaging and Neurofeedback conference. Gainesville, FL. February 2015.

Holsen, L.M.<sup>#</sup>, Davidson, P., Haimovici, F., Moondra, P., **Curran, M.T.,** Stoeckel, L.E. Mesolimbic and Cognitive Control Circuitry Activity Related to Emotional Eating Behaviors in Pre-Surgical Vertical Sleeve Gastrectomy Patients. Poster presentation at the Obesity Society Annual Meeting at Obesity Week. Boston, MA. November 2014.

Calderon, V.\*<sup>#</sup>, **Curran, M.T.**\*<sup>#</sup>, Gilman, J.M., Evins, A.E. Neural Activation to Social Influence in Young Adult Cannabis Users. Poster presentation at the annual MGH Clinical Research Day. Boston, MA. October 2014.

Stoeckel, L.E., Calderon, V.<sup>#</sup>, **Curran, M.T.**<sup>#</sup>, Evins, A.E. Assessing Cognitive Regulation of Cigarette Craving to Identify Brain Regions for Real-time fMRI Neurofeedback Training. Poster presentation at the annual MGH Scientific Advisory Committee Symposium. Boston, MA. April 2014.

Stoeckel, L.E.<sup>#</sup>, Ghosh, S., Keshavan, A., Stern, J.P., Calderon, V., **Curran, M.T.**, Whitfield-Gabrieli, S., Gabrieli, J.D.E, Evins, A.E. The Effect of Real Time fMRI Neurofeedback on Food and Cigarette Cue Reactivity. Poster presentation at the annual meeting of the American College of Neuropsychopharmacology. Hollywood, FL. December 2013.

**Curran, M.T.<sup>#</sup>** Spatial and Spectral Analysis of Herschel Counterparts to AzTEC Detected Sources. Oral presentation at the annual Five College Astronomy Department Undergraduate Theses Presentations. Amherst, MA. May 2012.

# **Academic Projects**

The Eyes Have It (or do they?) Team Final Project for Applied Machine Learning course, Fall 2017

- Applied machine learning techniques and algorithms to eye tracking data to investigate the ability to predict demographic and personality characteristics of viewers from this data
  - Link to project page: https://www.ischool.berkeley.edu/projects/2017/eyes-have-it-or-do-they

HCI in Virtual Reality Team Final Project for Needs and Usability Assessment course, Spring 2017

 Conducted a focus group, usability tests, evaluative interviews, and a competitive review for development of School of Information capstone project VR the Change, a virtual reality experience aimed at improving climate change awareness

#### **TrackStream**

Team Final Project for Web Architecture course, Fall 2016

 Designed and coded a web application using APIs to stream music from movies and TV shows. Link to final project: http://trackstream.herokuapp.com <u>SenseShare</u> Independent Final Project for Computer-Mediated Communication course, Spring 2016

- Designed a prototype for sharing personal biosignal information and conducted interviews to ascertain attitudes around this practice.

#### How Many Fish? Team Final Project for Information Visualization & Presentation course, Spring 2016

- Designed and implemented visualization around algorithm transparency in online dating Link to final project: http://howmanyfish.herokuapp.com

#### <u>PipPop</u>

Team Final Project for User Interface Design & Development, Fall 2015

- Carried out contextual inquiries, prototype iteration, think alouds, heuristic evaluation, and usability experiments for a project intended to ease the process of quickly and easily exchanging contact information between individuals

Link to final prototype: http://share.framerjs.com/9un2gzcsj9z7

# **Other Scholarly Activities**

- Reviewer for full paper, CHI Conference on Human Factors in Computing (CHI '20)
- PhD student representative to UC Berkeley School of Information staff and faculty (2017-2018)
- Reviewer for short paper, IEEE Biomedical Circuits and Systems Conference (BioCAS '17)
- Reviewer for journal article with John Chuang and Nick Merrill, IEEE Transactions on Information Forensics and Security (TIFS '17)
- Reviewer for full paper with John Chuang and Nick Merrill, Conference on Physiological Computing Systems (PhyCS '16)