Jacob D. Oury, PhD

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BIOGRAPHY AND BACKGROUND

I am a researcher and designer focused on testing and improving the usability and usefulness of interactive systems. I am looking for a position where I can apply my expertise to the design, testing, and development of high-stakes, high-use systems like medical record management systems. I earned my PhD in Informatics from Penn State University in 2022 (Advisor: Frank Ritter).
As part of the Applied Cognitive Science Lab at Penn State, I worked to improve cognitive models of human behavior in ACT-R, conducted experiments with computer-based learning to test theories of retention and forgetting, and worked with corporate partners to develop extensive guidelines for improving the usability of command center interfaces. My dissertation examined how interruptions affect learning and retention for complex tasks, and I showed how mental workload influences the disruptiveness caused by an interruption. At Penn State, I also provided teaching support for undergraduate courses on human-computer interaction, tech law, UX, and cognitive psychology, and I won the College of Information Sciences and Technology's Circle of Excellence in Teaching Support in 2018.

EDUCATION

PhD, Informatics **2022**
Pennsylvania State University – University Park, PA
College of Information Sciences and Technology

- Dissertation: *Dismal Interrupted – How interruptions affect the learning and retention of complex procedural tasks*
- Focus: Human-Computer Interaction | Cognitive Modeling | User-Centered Design
- Advisor: Dr. Frank E. Ritter

Bachelor of Science, Neuroscience with Departmental Honors ***2015***
Indiana University – Bloomington, IN

- Major: Neuroscience; Minor: Chemistry
- Major GPA: 3.493; Cumulative GPA: 3.557

PROFESSIONAL EXPERIENCE

L3Harris Technologies
Summer Intern – Graduate Student
Project: User-Experience Design Guidelines for Operation Centers *Summer 2018, 2019*

- Worked directly with stakeholders to develop user interface guidelines for complex tasks within command centers.
- Co-wrote a ≈45,000 word literature review of cognitive work in command centers that is published as a SpringerBrief in HCI.

- Began development of an experimental protocol for a human-in-the-loop simulation for operators within a command center monitoring unmanned autonomous systems.
- Self-taught interface design with Axure for creating functional prototypes.
- Used Axure to recreate two current interfaces and develop a new interface based on the systems used within command centers developed by L3Harris.

Pennsylvania State University
Research Assistant for Dr. Frank E. Ritter

Applied Cognitive Science Lab - http://acs.ist.psu.edu/wp/

Project: Web Server Maintenance and Upkeep *Fall 2019-August 2022*

- Ensured 24/7 access to three different web servers for research projects at the Applied Cognitive Science Lab.
- Responsible for updating servers, resolving any compatibility issues, and providing a stable environment for research projects.
- Migrated the lab's public-facing server across platforms to ensure security compliance.

Project: Skills to Obstruct Pandemics Book and Tutor *Spring 2020-Present*

- Set up and currently maintain a custom Apache server for hosting the D2P2 COVID-19 tutor titled StopTheSpread.
- Worked with a multi-disciplinary team of biologists, medical doctors, designers, and cognitive psychologists to develop a new tutor and accompanying book published by Sunbury Press.

Project: VITAMMINS tutor for trauma nursing skills *Spring 2020-August 2022*

- Handled server maintenance and improvement for an instance of the D2P2 tutoring system used to teach trauma nursing skills.
- Developed a program test protocol for the VITAMMINS nursing simulation that provides an efficient and comprehensive method for identifying bugs in a custom-built Unity simulation.
- Provided general technical support and helped ensure the large, complex experiment could be completed across a variety of platforms, situations, and users with minimal risk of failed experimental conditions.

Project: Declarative to Procedural Tutoring (D2P2) *Summer 2017-Fall 2017*
Summer 2020-Present

- Assisted the implementation and testing of new features within the Declarative to Procedural (D2P) Tutoring system to improve D2P2's implementation of theories of learning and memory.
- Helped conduct human experiments and analyze data on a large experiment that needed to be refitted in response to the COVID-19 pandemic.
- Provided general technical support across all projects in the ACS lab for issues arising from work with the D2P2 tutoring systems.
- Managed undergraduate research assistant programmers on work on improving the D2P2 system.

Project: User-Experience Design Guidelines for Operation Centers *Spring 2018-Fall 2019*

- Researched interface design guidelines able to be implemented by programmers with minimal experience in user-centered design
- Worked with stakeholders at Harris Corp to understand task environment and develop an experiment for testing the effectiveness of design features on a common task.

Teaching Assistant in College of IST

IST331: Foundations of User-Centered Design (3 credits) *Fall 2016, Fall 2017, Fall 2018*

- Assisted classes taught by Dr. Frank Ritter, Dr. Sarah Stager, and Dr. Yubo Kou
- Frequent guest lectures to describe my work.
- Served as primary lecturer during the Fall 2017 semester due to professor illness.
- Class size ranged from 60 - 120 students

IST402: How the Mind Works (3 credits) *Spring 2017*

- Taught by Dr. David Reitter
- ≈60 students

Indiana University
Research Assistant

Vocal and Communicative Development Lab
Principle Investigators: Drs. Meredith West & Andrew King
Data and Statistical Analysis Specialist *Oct 2013-Aug 2016*

- Developed novel method of longitudinal data analysis using KML3d in R for undergraduate thesis research resulting in pending publication
- Independently designed and maintained a large project database for organization and presentation of data
- Provided reports of updates to database to lab manager for weekly lab meetings; served to answer any questions regarding specific trends in the data at meetings

Undergraduate Research Assistant *Jan 2013-Oct 2013*

- Learned the lab's custom AMVTT (Analysis of Multirelational Valued Temporal Triads) coding protocol, coded videos at or above the 85% consistency required
- Participated in weekly protocol testing and discussion with lab group leading to increased reliability and greater scope of the AMVTT protocol
- Led and participated in monthly undergraduate literature discussions, led undergraduate projects directly involving research from the meetings

SELECTED GRADUATE COURSEWORK

Engineering of Cognitive Work *Fall 2017*
Principles of Artificial Intelligence *Fall 2017*
Computer-Supported Cooperative Work *Spring 2018*
Principles of Human-Computer Interaction *Fall 2018*

TECHNICAL SKILLS

- Interface design and modeling with **Axure**
- Modeling cognition with **ACT-R**

- Statistical Analysis using **SPSS** and **R**
    - Cluster analysis with KML3d
    - Standard statistical analysis for research
- Data management and graphical presentation in **Microsoft Excel**
- Behavioral Coding using **ELAN**
- Considerable experience in **Technical Writing** for publication and presentation (10+ publications including dissertation)
- Some programming experience with **Java** and **Lisp**
- Experience managing, updating, and troubleshooting Linux and MacOS servers **Apache, Git, Rails,** and **MySQL**
- Significant experience in **Copy-editing** and **Reviewing** technical writing (i.e., academic publications) and non-technical writing (e.g., company blog posts, personal essays)

PUBLICATIONS AND PRESENTATIONS

Tehranchi, F, **Oury, JD**, and Ritter, FE (2021) Predicting learning and retention of a complex task using a cognitive architecture. *In Proceedings of the Annual Meeting of the Cognitive Science Society (Vol. 43). 1077-1083*

Oury, JD, Ritter, FE, Cissé FB (2021) Counting pandemic statistics remotely using web cams. *Journal of Disaster Medicine and Public Health Preparedness*. DOI: 10.1017/dmp.2021.235

Ritter, FE, Clase, AC, Harvill, SL, Yeh, MKC, Joseph, RE, Oury, JJ, **Oury, JD**, Glantz, EJ, Fenstermacher, A, Brener, M, and James, JJ (2020) *Skills to obstruct pandemics: How to protect yourself and your community from COVID-19 and similar infections*. Mechanicsburg, PA: Sunbury Press.

Oury, JD, Ritter, FE (2021) *Building better interfaces for remote autonomous systems: An introduction for systems engineers*. SpringerBriefs In HCI. Cham, Switzerland: Springer Nature Switzerland AG.

Oury, JD, Ritter, FE (2019) UX Design Guidance for Operation Center Design. Technical Report No. ACS 2018-1. *For L3Harris*

Oury, JD, Tehranchi, F, and Ritter, FE (2018) Predicting Learning and Retention of a Complex Task. *In Proceedings of the 16th International Conference on Cognitive Modeling (ICCM 2018). 90-95*

Ritter FE, **Oury JD**, Tehranchi F. (2018) Testing the KRK Theory. Presentation at the ACT-R Workshop, July 2018.

Ritter FE, Tehranchi F, **Oury JD.** (2018) ACT-R: A cognitive architecture for modeling cognition. *WIREs Cognitive Science*. 2018;e1488. https://doi.org/10.1002/wcs.1488

Oury, JD (2015) Infant interaction trajectories predict autism and other disorders. Indiana University - *Undergraduate Honors Thesis*. Successfully defended in May 2015 DOI: 10.13140/RG.2.1.1335.1842

PUBLIC AND UNIVERSITY SERVICE

Academic Integrity Committee Board Member **2018-2022**
College of IST, Pennsylvania State University

- Responsible for overseeing cases of alleged academic misconduct for undergraduate students in the College of IST.
- Met when students choose to contest the academic sanctions imposed by the Pennsylvania State University Academic Integrity guidelines.

Reviewer – International Conference on Cognitive Modelling **2020-2022**

Reviewer – Cognitive Science Society Conference (CogSci) **2018-2022**

Ad Hoc Reviewer – Frontiers in Psychology **2017**

EXTRACURRICULAR AND VOLUNTEER EXPERIENCE

Ambition in Motion - Bloomington, IN
Survey Design Consultant 2015
Worked with Garrett Mintz, a local entrepreneur, to provide evidence-based recommendations to his development of a survey for matching interns with ideal companies.

CLEAR@IU - Bloomington, IN
Head of Event Planning Committee 2012-2014
Joined and took a leadership role in a new club called CLEAR (College Lifestyles Excluding Alcohol and Recreational drugs). Helped create exciting weekend activities for students that were looking for sober activities.

HONORS & AWARDS

Pennsylvania State University

- **Circle of Excellence in Teaching Support Distinction** **2018**
  Awarded to a graduate student who served as a teaching assistant or instructional assistant and who exhibits exemplary commitment to student learning, reflective teaching practices, leadership, and commitment to professional growth as a teacher.
- **Academic Achievement Award** **2016-2017**
  Value: $2,000
  Awarded for academic excellence prior to admission into the College of IST.

Indiana University

- **Awarded over $65,000 in scholarships at IU.**
  Awards: IU Excellence Undergraduate Scholarship, IU College of Arts & Sciences Direct Admit, IU Hutton honors College Scholarship IU Valedictorian Scholarship**,** Olive B. Cole Foundation Scholarship**,** and Steel Dynamics Inc. Scholarship.