

# Usan Dan

(510) 944-5867 • usandan2@illinois.edu

## EDUCATION

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### PhD in Neuroscience, Neuroscience Program

2021 - Present

*University of Illinois Urbana-Champaign*

- Thesis advisor: Dr. Alison Bell
- Committee: Dr. Alison Bell, Dr. Eva Fischer, Dr. Justin Rhodes, Dr. Dave Zhao

### BA in Molecular and Cell Biology: Neurobiology and English

2019

*University of California, Berkeley*

## RESEARCH

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### PhD Student

2021 - Present

*Bell Lab, University of Illinois Urbana-Champaign*

- Investigate the neural and hormonal basis of parental care in two recently diverged ecotypes of three-spined stickleback (*Gasterosteus aculeatus*)
- Collection and analysis of single-nucleus RNAseq and spatial transcriptomic datasets
- Perform behavioural experiments involving hormonal and viral-mediated genetic manipulations of neuropeptides
- Broader interest in the neural and hormonal basis of social behaviour

### Research Specialist

2019 - 2021

*Knight Lab, University of California, San Francisco*

- Investigated the role of neuropeptides in homeostasis and behaviour, in particular the effect of neuropeptide knockdown in the paraventricular hypothalamus (PVH) on energy homeostasis and osmoregulation; supervised by Dr. Zachary Knight at UCSF, and Courtney Hudson and Dr. Jennifer Garrison at the Buck Institute for Research on Aging

### Undergraduate Research Assistant

2016 - 2019

*Dan Lab, University of California, Berkeley*

- Assisted Dr. Fei Hu in investigating the mechanisms of top-down control by the prefrontal cortex, in particular in visual processing and related tasks, using optogenetic techniques in mice

## PUBLICATIONS

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**Dan, U.\***, Maciejewski, M.F.\*, Schwaiger, E.<sup>†</sup>, and Bell, A.M. (2024) Oxytocin influences parental care in male threespine stickleback across multiple time scales. *Hormones and Behavior*, 166, 105652. <https://doi.org/10.1016/j.yhbeh.2024.105652>

\*co-first authors <sup>†</sup>undergraduate author

Hu, F., Kamigaki, T., Zhang, Z., Zhang, S., **Dan, U.**, and Dan, Y. (2019) Prefrontal corticotectal neurons enhance visual processing through the superior colliculus and pulvinar thalamus. *Neuron*, 104(6), 1141-1152.e4. <https://doi.org/10.1016/j.neuron.2019.09.019>

Jang, H., Sharma, A.B., **Dan, U.**, Wong, J.H., Knight, Z.A., Garrison, J.L. (In review)  
Dysregulation of the fluid homeostasis system by aging.

## PRESENTATIONS

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### POSTER PRESENTATIONS

**Dan, U.**, Madrigal, G., Zhao, D., Behrens, C., Catchen, J., and Bell, A.M. (2024, August)  
Insights from single-nuclei transcriptomics into the evolution and neural basis of parental care in two three-spined stickleback ecotypes  
*Poster session presented at 15th International Congress of Neuroethology, Berlin, Germany*

**Dan, U.**, Madrigal, G., Zhao, D., Behrens, C., Cao, K., Catchen, J., and Bell, A.M. (2023, August)  
Neural Cluster Abundance and Activation Differences in Two Behaviourally Divergent Ecotypes of Three-spined Stickleback, *Gasterosteus aculeatus*  
*Poster session presented at Neuroethology: Behavior, Evolution and Neurobiology Gordon Research Seminar/Conference, Mount Snow, VT, USA*

**Dan, U.** and Bell, A.M. (2022, July) Fine-tuning a Shoaling Assay for Functional Manipulation in Threespined Stickleback, *Gasterosteus aculeatus*  
*Poster session presented at Animal Behavior Society meeting, San Jose, Costa Rica*

### ORAL PRESENTATIONS

**Dan, U.** (2022, July) Friendly or Feisty: Viral-Mediated Transgenesis in Threespined Stickleback  
*Workshop talk presented at Animal Behavior Society meeting, San Jose, Costa Rica*

**Dan, U.** (2022, May) Applying Functional Genetic Tools to Shoaling Behaviour in Threespined Stickleback, *Gasterosteus aculeatus*  
*Lightning talk presented at Gene Networks in Neural & Development Plasticity DataBlitz, University of Illinois Urbana-Champaign, IL*

## TEACHING

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### Teaching Assistant

**Spring 2023**

*Introductory Microbiology Lab, University of Illinois Urbana-Champaign*

- 1 semester, up to 24 undergraduates per section
- Taught and led 2 lab sections twice a week, graded lab reports

### Facilitator

**2018 - 2019**

*The Art of Taiko Drumming DeCal, University of California, Berkeley*

- Designed and taught a DeCal, student-run courses at UC Berkeley, with co-facilitators on both the performance techniques and cultural aspects of taiko drumming (traditional Japanese drumming)

## MENTORSHIP AND OUTREACH

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### Student Success Committee (Formerly DEI Committee)

**2022 - Present**

*Neuroscience Program, University of Illinois Urbana-Champaign*

- Monthly meetings to discuss DEI issues within the Neuroscience Program
- Brainstorm and plan programs to promote diversity in neuroscience research in the Urbana-Champaign community
- Revise and plan distribution of climate survey of the Neuroscience Program, to collect data on DEI issues within the program

### Student Research Mentor

**2021 - Present**

*Bell Lab, University of Illinois Urbana-Champaign*

- Train undergraduate students on laboratory techniques and guide their work in the lab, including independent projects
- Current mentees:
  - Julia Ciura
  - Link Lee
  - Anna Lehmann
  - Catherine Marquez
- Past mentees:
  - \*presented at undergraduate research symposium
  - †completed project for graduating with distinction
  - Kaithren García\*
  - Adi Nair\*
  - Emma Schwaiger\*<sup>†</sup>
  - Chloe Zant

### Brain Awareness Week Committee

**Spring 2022, 2023, 2024**

*Neuroscience Program, University of Illinois Urbana-Champaign*

- Plan and participate in outreach activities at local elementary and middle schools, educating the public about the brain and neuroscience

### PRECS Program Mentor

**Summer 2022**

*Bell Lab, University of Illinois Urbana-Champaign*

- PRECS: Phenotypic Plasticity Research Experience for Community College Students provides summer full-time research opportunities to community college students
- Trained and guided research of PRECS student along with two co-mentors

## AWARDS, HONOURS AND FELLOWSHIPS

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<b>Illinois Distinguished Fellowship (\$75,000)</b> <i>University of Illinois Urbana-Champaign</i>	<b>2021-Present</b>
<b>Conference Presentation Award (\$250)</b> <i>University of Illinois Urbana-Champaign</i>	<b>2024</b>
<b>Spatio-temporal Dynamics in Communication Fellowship and Travel Award (\$1840)</b> <i>University of Cincinnati, Funding supported by NSF IOS-2010768</i>	<b>2023</b>
<b>Honours in English</b> <i>University of California, Berkeley</i>	<b>2019</b>

#### **PROFESSIONAL MEMBERSHIPS**

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<b>International Society for Neuroethology</b> <i>Member</i>	<b>2024 - Present</b>
<b>Animal Behavior Society</b> <i>Member</i>	<b>2022 - Present</b>