BIN YU

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EDUCATION

University of California San Diego, San Diego, CA *September 2017 - Now*
Ph.D. in Electrical and Computer Engineering
Affiliation: Department of Electrical and Computer Engineering; Department of Neuroscience; HDSI Data Science Institute; Center for Neural Circuits and Behavior(CNCB)

University of Washington, Seattle, WA *September 2015 - June 2017*
M.S. in Electrical and Computer Engineering
Track: Control Theory and Robotics; VLSI and System Design

University of Washington, Seattle, WA *September 2012 - December 2015*
B.S. in Electrical and Computer Engineering
Track: Biomedical instrumentation Desgign; Digital VLSI Design

PUBLICATIONS

An Wu*, **Bin Yu***, Qiyu Chen, Gillian A. Matthews, Chen Lu, Evan Campbell, Kay M. Tye, Takaki Komiyama, "Context-dependent plasticity of adult-born neurons regulated by cortical feedback", *Science Advances*, eabc8319 (2020) (*: co-first author)

An Wu*, **Bin Yu***, Takaki Komiyama. "Plasticity in olfactory bulb circuits", *Current Opinion in Neurobiology*, Volume 64, 2020, https://doi.org/10.1016/j.conb.2020.01.007. (*: co-first author)

Eun Jung Hwang, Jeffrey E. Dahlen, Yvonne Yuling Hu, Karina Aguilar, **Bin Yu**, Madan Mukundan, Akinori Mitani, Takaki Komiyama (2019) "Disengagement of motor cortex from movement control during long-term learning", *Science Advances*, DOI:10.1126/sciadv.aay0001.

Ta-Tung Yen, **Bin Yu**, and Visvesh S. Sathe. "All-digital hybrid-control buck converter for Integrated Voltage Regulator applications." *2016 Design, Automation & Test in Europe Conference & Exhibition (DATE)*. IEEE, 2016

RESEARCH EXPERIENCES

The Komiyama Lab, University of California San Diego(UCSD) June 2018 - Now
Graduate Researcher *Advisor: Prof. Takaki Komiyama*

- Study the neural circuit function related to olfactory function.
- Design and develop experiments and protocols to test different hypotheses.
- Record animals' neural activities and behavior using two-photon microscopy and high speed cameras.
- Use machine learning tools to map the relationship between neural activities and behavior.

The Tuthill Lab, University of Washington (UW) June 2016 - September 2017
Graduate Researcher *Advisor: Prof. John Tuthill*

- Quantified walking behavior of *Drosophila* by computer vision program developed myself in Python.
- Compared the walking behavior of *Drosophila* with different sensory neurons blocked to test how sensory neurons impact the motor control of walking behavior.
- Built a new projector-based virtual reality device for *Drosophila*.

VLSI System Group, UW January 2015 - March 2015
Undergraduate Researcher *Advisor: Prof. Visvesh Sathe*

· Designed a digital control block for an all digital DC-DC converter and published a paper on it.
· Tested, redesigned an open source microprocessor and made the synthesis and simulation.

Sensor System Lab, UW January 2014 - January 2015
Undergraduate Researcher *Advisor: Prof. Joshua R. Smith*

· Processed electromagnetic wave with GNU radio and a USRP.
· Tested radio-frequency (RF) circuit for the wireless identification and sensing platform (WISP) project.
· Tested Open-MSP430 core for the brain-computer-spinal interface.

Public Health Department, UW March 2014 - January 2015
Volunteer Independent Researcher *Advisor: Prof. Edmund Y. W. Seto*

· Built a wireless semi-volatile organic compounds (SVOC) monitor system with signal amplifier, real-time signal processing and wireless data transmission using a Raspberry Pi.

TEACHING EXPERIENCES

Teaching Assistant, Introduction of Data Analysis, UCSD Sep 2019 - Dec 2019
Instructor: Prof. Eran Mukamel

Teaching Assistant, Introduction of Digital Design, UW Sep 2015 - Sep 2017
Instructor: Prof. Georg Seelig

Teaching Assistant, Digital VLSI design I & II, UW June 2014 - April 2015
Instructor: Prof. Visvesh Sathe

HONOR AND AWARD

Departmental Honor, Electrical and Computer Engineering, UW June 2015

College Honor - Magna Cumme laude, College of Engineering, UW June 2015

ECE Graduate Fellowship, Electrical and Computer Engineering, UCSD Sep 2017 - June 2018

Innovative Research Grant Award, Kavli Institute for Brain and Mind Sep 2021 - June 2022

REFERENCES

Professor Takaki Komiyama, Email: tkomiyama@ucsd.edu
Professor, Neuroscience and Neurobiology, University of California San Diego

Professor John Tuthill, Email: tuthill@uw.edu
Associate Professor, Physiology and Biophysics, University of Washington

Professor Joshua Smith, Email: jrs@cs.uw.edu
Professor, Computer Science/Electrical Engineering, University of Washington

Professor Georg Seelig, Email: gseelig@u.washington.edu
Professor, Computer Science/Electrical Engineering, University of Washington

Professor C.J. Richard Shi, Email: cjshi@ee.washington.edu
Professor, Electrical Engineering, University of Washington