

Shido Nakajima

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PROJECTS

Capstone: Bleeding Control Trainer with Augmented Reality Interface

- Unity and C# oriented AR training interface on a manikin for treating traumatic hemorrhage.
- Project Manager: scheduled and managed project tasks and risks using Gantt chart, Microsoft Project, Work Breakdown Structure, and matrices.
- Programmer: coded AR object behavior using C# and Unity.
- Designer: fabricated a high pressure arterial bleeding asset using pre-built asset and manual designing.

Parasite Trajectory Analysis using Machine Learning techniques

- MATLAB-based trajectory analysis of parasite positional data via detection of movement groups.
- Convolutional Neural Network image analysis, Decision Tree, and Bagged Decision Tree techniques were used for classification.
- <https://github.com/sNakajima1632/Parasite-Assessment>

Brain Tumor Detection using Machine Learning

- MATLAB-based, automatic detection of tumor in Brain MRI via image analysis.
- Independent project as a part of the Biomedical Image Processing course.

Personalized Servers and Accessories

- Installed Ubuntu Server on an old laptop for hosting home entertainment.
- Built Linux and Arduino based accessories such as signal extender and liquid saturation detector.

Work Experience

Research Assistant Intern at UT Austin

summer 2018

- More officially: Indicator Displacement Assay Using a Boronic Acid Host and Acid Analyte.
- Under the Practical Molecular Sensors stream of the Accelerated Research Initiative program.
- UV/vis spectrophotometer used to graph/analyze saturation of target substances.
- Mass, volume, and concentration calculation conducted daily to form the substances used.
- Conducted daily check of tools and chemicals, cleaning and adherence to sanitary and safety standards, and communication of methods and results.

Undergraduate Researcher at UT Dallas

2021- 2023

- Neuronal Networks and Interfaces Laboratory
- Collection and analysis of neural activity in motor cortex of rats.
- Applied filters and manual sorting on collected data to separate units of neuron activity from noise.
- Handled, habituated, anesthetized, and injected rats to observe change in collection of neural activities.
- Assisted in implantation surgery of microelectrode arrays, and brain extraction surgery after rat euthanasia.

PUBLICATIONS

Jeakle, E. N., et. al. (2023). Chronic stability of local field potentials using amorphous silicon carbide microelectrode arrays implanted in the rat motor cortex. *Micromachines*, 14(3), 680.
<https://doi.org/10.3390/mi14030680>

EDUCATION

Master of Science in Biomedical Engineering
University of Texas at Dallas, Richardson, TX

2025-

Bachelor of Science in Biomedical Engineering
University of Texas at Dallas, Richardson, TX
GPA: 3.772/4.0 Weighted

2020-2024

SKILLS

Project Management: Microsoft Project, Gantt chart, Work Breakdown Structure

Computer Language: MATLAB, C/C#, bash, LabVIEW, Java, Linux Terminal, powershell

Web Development: AWS, React, Type Script, HTML, CSS, Javascript, Adobe Dreamweaver

Finite Element Analysis: FEBio, Meshlab, 3D slicer, MATLAB Gibbon

Computational Analysis: Convolutional Neural Network, Decision Tree, k-means clustering analysis

Designing: Inventor/Solidworks (3D CAD), Adobe Photoshop, Adobe InDesign, Express PCB,
Express SCH

Operating System: Virtual Machines, Windows, Windows Server, Mac OS, Ubuntu, Ubuntu Server,
Kali Linux, Metasploitable2, Raspbian

Laboratory Experience: sterilization techniques, rat habituation, anesthesia, euthanasia, OmniPlex
Neural Recording system

Fabrication Machines: Soldering, Dremel, 3D Printer, Band Saw, Scroll Saw, Drill, hand tools

Computer Network: Cisco Packet Tracer, Wireshark, Ekahau Heat Mapper, Nmap

Violinist: 9 years of study

Language: English (native) and Japanese (native)

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REFERENCES

Luis Martinez, PE

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Mentor for Capstone project from 2023 to 2024.

Dr. Gilberto Salazar

Associate Professor

The University of Texas Southwestern Medical Center

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Dallas, TX 75390

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Client for Capstone project from 2023 to 2024.

Dr. Ana Hernandez-Reynoso

Assistant Professor

Case Western Reserve University

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Cleveland, OH 44106

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Lab supervisor at UT Dallas from 2021 to 2023.