

# 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.

### 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

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

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

Computer Language: MATLAB, Arduino, bash, LabVIEW, Java, C, Java Script, Linux  
Terminal, powershell

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

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

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

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

### **Dr. Ana Hernandez-Reynoso**

Research Scientist  
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800 W. Campbell Road  
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Lab supervisor from 2021 to 2023.

### **Luis Martinez, PE**

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Mentor for Capstone project from 2023 to 2024.

### **Dr. Gilberto Salazar**

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Client for Capstone project from 2023 to 2024.