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

Bachelor of Science in Biomedical Engineering
University of Texas at Dallas, Richardson, TX 2020-2024
GPA: 3.772/4.0 Weighted

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

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Lab supervisor from 2021 to 2023.

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Mentor for Capstone project from 2023 to 2024.

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Client for Capstone project from 2023 to 2024.