ALEXANDRO ARNAL

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OBJECTIVE

I seek a full-time opportunity where I can use my expertise in **Computer Vision, Data Science, Machine Learning, Deep Learning,** and **Neuroscience**

EDUCATION

Ph.D., Computational Science – University of Texas at El Paso, Texas – GPA: **3.86**/4.0 **(expected) 2022**
Concentration: *Computer Vision & Deep Learning Techniques*

M.S., Computational Science – University of Texas at El Paso, Texas – GPA: **3.85**/4.0 **2020**
Thesis: *Toward Automated Region Detection & Parcellation of Rat Brain Tissue Images*

Big Data Analytics Graduate Certificate – University of Texas at El Paso, Texas **2020**

B.S., Neuroscience – Baylor University, Texas – GPA: **3.18**/4.0 **2015**

EXPERIENCE

Research Assistant **2018 – Present**
Vision & Learning Lab at The University of Texas at El Paso
• Developed deep learning methods to segment brain regions from images of rat brain tissue stained for Nissl
• Built convolutional architectures to segment neuronal fibers and map cells from images of immunoreactive tissue
UTEP Systems Neuroscience Laboratory at El Paso
• Developed isopleth and choropleth visualization methods for standardized brain atlases
• Enabled biologists to leverage deep learning technologies via web applications for neuronal data analysis

Teaching Assistant **2018 – Present**
• Taught Numerical Optimization, Statistics, Calculus 1 & 3, PreCalculus at the University of Texas at El Paso

PROJECTS

Computer Vision Apps **2022**
Built a web application to process histology micrographs, specifically for cell detection and fiber segmentation

Estimating Cell Density **2021**
Built a web application that receives cell locations in SVG format and outputs density contours of the data

Read Faster **2020**
Developed a program that creates an animation from text, allowing a user to read without moving their eyes

Self-Supervised Learning **2018**
Implemented a contrastive learning algorithm to learn cellular morphology in image patches of rat brain tissue

Quantifying Injection Deposits **2017**
Developed a method to compute the overlap of a mapped injection deposit with brain regions of a rat brain atlas

SKILLS

Programming: Python, R, MATLAB, SAS, JavaScript, C, C++, openMP, MPI, PyTorch, TensorFlow, Keras, Scikit-learn, OpenCV, Pandas, Flask, LaTeX, HTML, CSS, XML, SVG

Software: Visual Studio, Git, cellSense, FileZilla, Adobe Photoshop, Adobe Illustrator, Adobe Premiere Pro, Adobe Dreamweaver, Open Broadcaster Software, Switcher Studio, Zoom, MS Teams

AWARDS

College of Science Travel Grant (2021) • UTEP Graduate School Travel Grant (2019) • Dodson Research Grant (2019) • Doctoral Excellence Fellowship (2018) • Provost's Gold Scholarship (2013) • Federal Pell Grant (2013) • Supplemental Education Opportunity Grant (2013) • Tuition Equalization Grant (2013)

PUBLICATIONS

• Effects of scale on segmentation of Nissl–stained rat brain tissue images via convolutional neural networks, Proceedings of FLAIRS-35 2022

MEMBERSHIP

Society for Neuroscience (Member) **2019 – Present**
Organization for Computational Neuroscience (Member) **2019 – Present**
Society for Neuroscience Sun City Chapter (Webmaster) **2019 – Present**
Computational Science Student Association (Public Relations Officer) **2021 – Present**