GUNNAR NELSON

GUNNARBNELSON.COM
GUNNELSON523@GMAIL.COM
770-354-3639

EDUCATION

MASTER'S DEGREE (MS) COMPUTER SCIENCE & APPLICATIONS
2020-2022
VIRGINIA TECH COLLEGE OF ENGINEERING
THESIS: XMARCUS-A PATHWAY TOWARDS REMOTE ROBOTIC SURGICAL TRAINING
GPA: 3.75

BACHELOR OF SCIENCE (BS) BIOCHEMISTRY MINOR COMPUTER SCIENCE 2015-2019
VIRGINIA TECH COLLEGE OF SCIENCE

EXPERIENCE

LEAD SOFTWARE ENGINEER
NERVE+INC-SAN FRANCISCO, CA | JAN 2021-JUNE 2022

- Performed instance segmentation for 5 CNN ML models to be tested and refined for public domain and crowdsource annotation. Responsible for dataset creation, annotation, filtering, and testing/deiploying 5 generic ML models into video game simulation. Writing ML models in python, and surgical simulation environment in C++.
- Worked with advanced camera pipeline video processing algorithms illumination color and power control functions for instance segmentation of anatomy in an in vivo diaphragm dissection.,
- Worked on 3D VR environment augmenteation for pharamcutical data analysis and Human-AI interaction workflow environmentbuilt with Unreal Engine 5.0

LEAD SOFTWARE ENGINEER-IOS
VAROS-WASHINGTON, DC| JAN 2021- DEC 2021

- Responsible for high scale team development of technical solutions and integration of AR/VR development based on CAD designed anatomy to aid in patient education and lead successful launch of VAROS App
- Presented work at Society of American Gastrointesntial & Endoscopic Surgery
- Published in the Journal of Surgical Endoscopy
- Tech stack: Blender, Unity, Apple Reality Converter, and Apple API AR integration

AI SOFTWARE ENGINEER RESEARCH INTERN
COMMONWEALTH CYBER INITATIVE-WASHINGTON, DC | MARCH 2021- JULY 2021

- Responsible for integrating Augmented Reality Design into the Microsoft Hololens 2
- perform configurations of Hidden Markov Models for public domain data for third part applications
- Worked with hands on GPU CUDA, and PyCUDA for performance on ChesXNet ML models
- Supervised and educate colleagues on the basis of Raspberry Pi development, Linux/Unix OS, and lead on projects

PEPPER ROBOTICS SOFTWARE LEAD-GRADUATE RESEARCH ASSISTANT
MIND MUSIC MACHINE LAB-BLACKSBURG, VA | AUG 2020- MAY 2021

- Lead two research projects on human-emotive robot interaction and the Mind Music Machine Lab's Robot Theater Elementary school program
- Developed custom movements in Koltin and Java based Android libraries, with 135 Pepper robot movements
- Performed Computer Visiona dn Audiotoriy tasks for Human-Robot Emotion
- Supervised undergraduate students in coding robot programs
- Taught students python fundamentals and drag-and-drop preset programs for Softbank's Pepper R
- Managed equipment for Softbank's Pepper and Nao humanoid robotics equipment

FLUTTER-REACT NATIVE-SQL SOFTWARE ENGINEER
IMAWARE, HOUSTON, TX | JAN 2020- JULY 2020

- Construct React-Native based App in JavaScript for IOS/Android platforms, for transactions between users
- Perform SQL queries on PostGRESQL
- Develop React Based Application

SOFTWARE ENGINEERING RESEARCHER
CYBERBIOSECURITY INITATIVE-VIRGINIA TECH-BLACKSBURG, VA | AUG 2019-DEC 2019

- Construct TensorFlow based classifier, and creating datasets from scratch, to distinguish between third world country fishing boats and countries patrol boats to minimize cases of piracy, using the MobileNet CNN architecture to be applicable for Android devices.

PUBLICATIONS & PRESENTATIONS

- **IDENTIFYING CURRICULUM GAP IN FUNDAMENTALS OF ROBOTIC SURGERY AND FUNDAMENTAL SKILLS OF ROBOTIC SURGERY: HANDLING ADVERSE EVENTS**
  JOURNAL OF SURGICAL ENDOSCOPY | APRIL2018
  WORLD CONGRESS OF ENDOSCOPIC SURGERY

- **LAPAROSCOPIC RELEASE OF MEDIAN ARCUATE LIGAMENT**
  JOURNAL OF SURGICAL ENDOSCOPY | APRIL2019
  SOCIETY OF AMERICAN GASTROITNESTINAL & ENDOSCOPIC SURGEONS

- **MINIMIZING ROBOTIC SURGERY ADVERSE EVENTS THROUGH MACHINE LEARNING**
  JOURNAL OF SURGICAL ENDOSCOPY | MARCH 2021
  JAPANESE SOCIETY OF ENDOSCOPIC SURGERY/WORLD CONGRESS OF ENDOSCOPIC SURGERY

- **ACM WORKS OF WONDER SHOWCASE-A PARADIGM SHIFT IN MEMORIALIZATION: LEARNING AND ENGAGEMENT THROUGH 3D VIRTUAL MUSEUMS**
  LIBERATION WAR MUSEUM BANGLADESH-MARCH 2021

- **REDEFINING THE DIGITAL PARADIGM FOR MUSEUMS-CONSIDERING THE COVID-19 PANDEMIC**
  LECTURE NOTES IN COMPUTER SCIENCE (LNCS) | JULY2021
  INTERNATIONAL CONFERENCE ON HUMAN-COMPUTER INTERACTION

- **KNOWLEDGE IS POWER: LINKING AUGMENTED-REALITY WITH 3D PRINTED INTERNAL ORGANS TO IMPROVE MEDICAL EDUCATION AND INCREASE PATIENT INVOLVEMENT IN CLINICAL STUDIES:**
  JOURNAL OF SURGICAL ENDOSCOPY |AUGUST2021
  SOCIETY OF AMERICAN GASTROITNESTINAL & ENDOSCOPIC SURGEONS

SKILLS

- C++
- Python
- GPU Languages: CUDA and
- AI
- Machine Learning
- Tensor flow
- Scikit learn
- Java
- Javascript
- HTML
- CSS
- React Native
- Node JS
- Android Library
- IOS Libraries
- Unity Development
- Research
- Mentorship
- Outreach
- Entrepreneurship
- Team Building
- Teaching
- Robotics
- Linux OS
- Microsoft Office
- Operating Systems
- Swift
- APIs

VOLUNTEERING

STEM CLASSROOM ASSISTANT
PRICES FORK ELEMENTARY-BLACKSBURG, VA | AUG 2020- PRESENT

- Teaching 3rd-5th graders about robotics and AI fundamentals.
- My mission is to inspire

ALLIED MEMBER
BLACK IN AI | JAN 2021- PRESENT

- Organize and host monthly zoom session to discuss issues on system racism and provide an inclusive community to technology

ALLIED HEALTH MEMBER
SOCIETY OF AMERICAN GASTROINTESTINAL AND ENDOSCOPIC SURGEONS (SAGES) | JAN 2021- PRESENT

- Mentor high school students with advice for pre-medical studies and aid in SAGES' Mini Medical School Bootcamp

LINKS TO PORTFOLIO OF WORK

LINKED-IN

WEBSITE

GITHUB

GOOGLE SCHOLAR

THESIS: XMARCUS

TWITTER