

GUNNAR NELSON

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EXPERIENCE

GRADUATE TEACHING ASSISTANT

VIRGINIA TECH-BLACKSBURG, VA | AGUST 2021- PRESENT

- Graduate Teaching Assistant for human-computer interaction class CS 4975 under Dr Dennis Kafura
- Managed large class sizes during COVID 19
- Mitigate teaching on virtual and hybrid platforms

AI 5G RESEARCHER INTERN

COMMONWEALTH CYBERSECURITY INITATIVE| MARCH 2021- JULY 2021

- Responsible for integrating Augmented Reality Design into the Microsoft Hololens 2
- Development for research lead
- Supervised and educate colleagues on the basis of Raspberry Pi development, Linux/Unix OS, and lead on projects for the CCI internsip

GRADUATE RESEARCH ASSISTANT

MIND MUSIC MACHINE LAB | AUG 2020- MAY 2021

- Studying Human-Robot Interaction and Child-Robot Interaction, through deep learning sonification for children with autism
- Supervise undergraduates through interactive workshops, empowering them
- Mentored two undergraduates published for Human Factors Engineering Conference 2021

GRADUATE TEACHING ASSISTANT

VIRGINIA TECH-BLACKSBURG, VA | JAN 2021- MAY 2021

- Graduate Teaching Assistant for graduate cybersecurity class
- CS Systems and Software Security 5590 under Dr Matthew Hicks
- Managed large class sizes during COVID 19
- Mitigate teaching on virtual platform

CYBERSECURITY RESEARCHER

CYBERBIOSECURITY INIATIVE-VIRGINIA TECH-BLACKSBURG, VA | JAN 2020- MAY 2020

- Research and handpick case studies datasets using IEEEExplore, AMC Database, and Google Scholar
- Focus on military supply chain utilizing convolution neural networks to fit and improve dataset for recognizing maritime imagery in the visible and infrared spectrum
- 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.

UNDERGRADUATE RESEARCHER

SYNERGY LAB-VIRGINIA TECH-BLACKSBURG, VA | AUG 2020- PRESENT

- Aid in construction of python-based U-NET convolution neural networks,
- Applied machine learning techniques in Tensorflow/Scikit-Learn, and converting sinograms to CT images for low cost CT-imaging

EDUCATION

MASTER'S DEGREE (MS) COMPUTER SCIENCE & APPLICATIONS 2020-2022
VIRGINIA TECH COLLEGE OF ENGINEERING
GPA: 3.75

BACHELOR OF SCIENCE (BS) BIOCHEMISTRY 2015-2019
VIRGINIA TECH COLLEGE OF SCIENCE
GPA: 3.54

PUBLICATIONS & PRESENTATIONS

- **IDENTIFYING CURRICULUM GAP IN FUNDAMENTALS OF ROBOTIC SURGERY AND FUNDAMENTAL SKILLS OF ROBOTIC SURGERY: HANDLING ADVERSE EVENTS**

JOURNAL OF SURGICAL ENDOSCOPY | APRIL 2018
WORLD CONGRESS OF ENDOSCOPIC SURGERY

- **LAPAROSCOPIC RELEASE OF MEDIAN ARCUATE LIGAMENT**

JOURNAL OF SURGICAL ENDOSCOPY | APRIL 2019
SOCIETY OF AMERICAN GASTROINTESTINAL & ENDOSCOPIC SURGEONS

- **DIRECTIONAL OVERVIEW OF MACHINE LEARNING AND ROBOTIC SURGERY**

JOURNAL OF SURGICAL ENDOSCOPY | APRIL 2020
SOCIETY OF AMERICAN GASTROINTESTINAL & ENDOSCOPIC SURGEONS

- **REDEFINING THE DIGITAL PARADIGM FOR MUSEUMS-CONSIDERING THE COVID-19 PANDEMIC**

LECTURE NOTES IN COMPUTER SCIENCE (LNCS) | JULY 2021
INTERNATIONAL CONFERENCE ON
HUMAN-COMPUTER INTERACTION

- **DEMOCRATIZING ROBOTIC STEM EDUCATION FOR TITLE-1 SCHOOLS, EMPATHETIC ROBOT THEATER:**

HUMAN FACTORS: THE JOURNAL OF THE HUMAN FACTORS AND ERGONOMICS SOCIETY | OCTOBER 2021
HUMAN FACTORS & ERGONOMICS SOCIETY

- **MINIMIZING ROBOTIC SURGERY ADVERSE EVENTS THROUGH MACHINE LEARNING**

JOURNAL OF SURGICAL ENDOSCOPY | MARCH 2021
JAPANESE SOCIETY OF ENDOSCOPIC SURGERY/WORLD CONGRESS OF ENDOSCOPIC SURGERY

SKILLS

- Artificial Intelligence
- Machine Learning
- Human-Robot Interaction
- Human-Computer Interaction
- Deep Learning
- Tensor flow
- Scikit learn
- Python
- Java
- Javascript
- HTML
- CSS
- Frontend development
- React Native
- Node JS
- Unity Development
- Research
- Mentorship
- Outreach
- Entrepreneurship
- Team Building
- Teaching
- Robotics
- Linux OS
- Microsoft Office
- Operating Systems
- Mac OS
- Data Structures
- Algorithm development and theory

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

- My mission is not to only grow, but aid in combating systemic racism/sexism through knowledge and skills I continue to develop

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



TWITTER