

Undergraduate and/or Graduate Research Opportunities for international Students at the University of Nevada, Las Vegas

Department of Computer Science

1. Projects: Bioinformatics, Deep Learning, Text/Data Mining, Computer Vision
- Areas of Expertise Interns Should Have: Programming languages skills are required. Strong background of mathematics, Statistics, and Computer Science are preferred.
2. Projects: Behavior Modeling, Sensor Data, Imitation Learning, Applications to Healthcare, traffic, etc.
- Areas of Expertise Interns Should Have: Programming languages skills are required. Strong background of mathematics, Statistics, and Computer Science are preferred.
3. Projects: Applied Cryptography, Privacy Preservation, Investigation of Cyber Incidents, Vulnerabilities of AI algorithms.
- Areas of Expertise Interns Should Have: Programming languages skills (Python, Solidity, etc.) are required. Strong backgrounds of mathematics, statistics, and Computer Science are preferred.

Department of Electrical and Computer Engineering

4. Projects: 1) Robotics (SLAM) 2) Unmanned Aerial Vehicles (UAVs) (acoustics and video processing) 3) Image Processing using Depth and 3D Sensors and Hyperspectral cameras 4) FPGA design for Deep Learning 5) Embedded Security and Machine Learning 6) Wireless and Wearable Sensor Networks.
- Areas of Expertise Interns Should Have: C/C++ Programming, Python+, Matlab, Embedded Systems (ARM or any 32-bit processor), Verilog/VHDL (FPGA design), Robotic Operating Systems (ROS), Linux.
5. Projects: IoT projects, FPGA/VHDL projects, and digital logic
- Areas of Expertise Interns Should Have: computer engineering in general, ideally having some knowledge about logic design, programming, embedded systems.
6. Projects: Sensors for autonomous vehicles
- Areas of Expertise Interns Should Have: Experience with circuits and ICs, microcontroller programming, and PCB design/fabrication.

Department of Mechanical Engineering

7. Projects: 1) Developing a predictive model for diabetic ulcers 2) Biomechanics of plantar tissues 3) Biomechanics of colorectal tissues 4) Mechanical characterization of polymers -
Areas of Expertise Interns Should Have:
Signal processing; Programming, preferably in Matlab; Computer vision; and Basic understanding of biomechanics and dynamics; Finite Element, preferably in ANSYS; Data analysis; Machine Learning

8. Projects: 1) Biosensing 2) Nanotechnology 3) Photovoltaics 4) Biomaterials
 - Areas of Expertise Interns Should Have: the knowledge of mechanical engineering, chemical engineering, and electrical engineering
9. Projects: The projects are in the area of robotics and automation design, research and development, and testing
 - Areas of Expertise Interns Should Have: fabrication (e.g. basic machining, 3D printing, CNC) skills, Matlab, CAD (e.g. Solidworks, Pro/E, AutoCad) and programming – all highly recommended, but not a pre-requisite.
10. Potential projects: Pool boiling heat transfer enhancement with surfactants (experimental), - Surfactant diffusion finite-element modeling (simulation), Atmospheric water harvesting (experimental), Hydrogel permeability study (experimental + modeling), Liquid-vapor surface tension measurement (experiment + coding)
 -Recommended skills (not all required, many can be learned): Programming (any language but Mathematica and LabView preferred), Part design, 3D printing, Finite element simulation, Heat transfer, Fluid mechanics, and Thermodynamics
- 11. Projects:** Tissue Engineering, Mechanobiology, Biophysics, Biomedical Instrumentation
 - Areas of Expertise Interns Should Have: Cell/Tissue Culture, Fluorescence Microscopy, Biomedical Engineering, and Biomechanics

Department of Civil and Environment Engineering

- 12. Projects:** Data-driven Construction Management, Natural Language Processing (NLP) in Construction Management, SMART Construction
 - Preferred interns will have research expertise in at least one of the following areas: construction/project management; building science; sustainable construction; architectural engineering; civil engineering. Programming language skills (e.g., Python, R, etc.) are preferred.
- 13. Projects:** 1) Tactile-based communication system for quick signaling to human subjects. 2) Human detection and density estimation by Bluetooth-low energy technology.
 - Areas of Expertise Interns Should Have: Programming skill is preferred. Student without programming skills can assist system testing and other relevant activities.
- 14. Projects:** 1) Biodegradability and bioavailability of contaminants in Water 2) Removal of contaminants from water and wastewater
 - Areas of Expertise Interns Should Have: Wet chemistry laboratory skills including safe handling of chemicals.
- 15. Projects:** Environmental engineering research 1) Biological phosphate removal 2) Biological chromate reduction 3) Perchlorate reduction by bacteria.

- Areas of Expertise Interns Should Have: Wet chemistry laboratory skills including safe handling of chemicals; Junior or Senior Student

16. Projects: 1) Collection and analysis of water samples to determine potential for formation of disinfection byproducts, and 2) investigating multiple strategies to reduce trihalomethanes (THMs) in water reservoir tanks. Some projects may involve working with wastewater or untreated surface waters.

Areas of Expertise Interns Should Have: Environmental engineering, environmental chemistry, or analytical chemistry background. Students must have prior wet lab experience (e.g. chemical handling, pipetting, glassware handling, making solutions). Prior experience with mass spectrometry instruments is preferred but not required.

17. Projects: 1) Construction Industry Institute's Modular Construction/Standardization 2) National Science Foundation's Construction Workforce 3) University Transportation Center's Planning/managing High-Speed Rail project

- Areas of Expertise Interns Should Have: 1) Basic Knowledge in Construction/Civil Engineering 2) Research interests in Construction Engineering and Project Management 3) English Proficiency

- 18. Projects: the experimental component of my ongoing NSF project: Behavior of reinforced concrete structures near collapse.

- Areas of Expertise Interns Should Have: Must have taken the courses of concrete material and reinforced concrete structures

19. Projects: Storm water management; climate change; urban hydrology; groundwater change estimation using satellite remote sensing

- Areas of Expertise Interns Should Have: some Matlab programming skills, course work in hydrology, water resources engineering, and GIS will be helpful but not required.

Entertainment Engineering and Design

20. Projects: 1) Augmented and Virtual Reality (AVR); 2) Robotics - Areas of expertise interns should have:

Programming experience with any computer languages and/or Experience with electronic circuits; Microsoft office programs;