Carson Minor

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SUMMARY

Nanotechnology driven student with research and leadership experience. Significant materials analysis skills. Projects extend outside of employment and school. Curious and goal-oriented personality.

EDUCATION

Materials Science and Engineering, B.S., University of Utah
Graduating May 2025, Cumulative GPA: 3.419

Relevant Coursework
Study of Molten Salt CNT Synthesis – Advised by Prof. Michael Simpson
Nanostructured Materials
Molten Salts
Materials Innovation

Awards and Scholarships
Western Undergraduate Exchange Scholarship
Alumni Legacy Scholarship
Kenneth Kobayashi Memorial Scholarship
Undergraduate Research Opportunities Program Award Recipient
Ivan B. Cutler Endowed Scholarship
AIST Northern Pacific Member Scholarship
Dean's List Fall 2021 & 2023

RESEARCH

Experience
Associate Lab Manager, Research Assistant
Nanostructured Materials Research Laboratory, University of Utah
September 2021-January 2025

- Pioneered the development of a novel process for synthesizing high-quality copper-graphene wire, progressing from initial exploratory research to consistent production of high-performance samples. This involved iterative refinement of synthesis techniques including material mixing, annealing, rolling and pulling methods, achieving scalable and repeatable results.
- Directed a team of researchers for a DOE-funded project, organizing synthesis, processing, and analysis of advanced materials.
- Trained project researchers in advanced synthesis techniques, improving team productivity and technical proficiency.
- Coordinated with DOE and DARPA by preparing detailed presentations and quarterly reports, maintaining strong partnerships with funding agencies.
- Recognized as an inventor on a pending patent for a novel nuclear materials synthesis technique.
- Co-authored research paper on the development of a novel synthesis technique of Barium Stannate microcrystals (https://doi.org/10.1016/j.matchemphys.2022.127042).
- Prepared and presented research at GCURS at Rice University (November 2024) and TMS (March 2025).
- Designed and programmed Arduino robotics for cyclic heating processes, enhancing experimental precision and efficiency.
- Ensured compliance with safety standards while conducting solid-state, molten salt, sol-gel, and PLD thin-film synthesis.
- Analyzed materials using SEM, EDS, XRD, UV-Vis, and Instron techniques, generating actionable insights to advance research.
- Paid employee for over 1200 hours of research.

Publications

- G. Mishra, C. Minor, and A. Tiwari, "High throughput synthesis of BaSnO3 microcrystals by molten salt technique," *Materials Chemistry and Physics*, vol. 295, pp. 127042–127042, Feb. 2023, doi: https://doi.org/10.1016/j.matchemphys.2022.127042.
- A. Tiwari, C. Minor, and G. Mishra, (2024). Precision Fabrication of Advanced Nuclear Fuel Particles. US Patent Application No. 63/656,534, filed June 5, 2024.

Presentations

- C. Minor, G. Mishra, and A. Tiwari, "Synthesis of High-Entropy, Water-Soluble Ceramics for Use as Sacrificial Templates in Growth of Freestanding Thin Films," presented by C. Minor in the Applied Physics section of the Gulf Coast Undergraduate Research Symposium (GCURS), Rice University, Houston, Texas, Nov. 9, 2024.

Interests

Carbon nanotube alignment, electrophoretic CNT alignment, CNT fiber synthesis, CNT wire applications, CNT synthesis, molten salts, conductive and superconductive materials

VOLUNTEER EXPERIENCE

Chair, Vice Chair

Material Advantage Student Chapter, University of Utah

August 2022-June 2024

- Boosted chapter membership by 200% in the first semester as Chair through targeted outreach and engagement.
- Established a financial partnership with Northrop Grumman, securing sponsorship to support chapter activities.
- Organized monthly professional development workshops, industry tours, and social events to enhance member experience.
- Led a team of officers, delegating tasks and maintaining a robust calendar of events and activities.

WORK EXPERIENCE

Engineering Clerk

Coreslab Structures, Perris, CA

February 2021-August 2021

- Designed precast concrete components for the SDSU Aztec Stadium project using Revit, ensuring compliance with engineering specifications.
- Improved organization and efficiency of engineering processes, streamlining design workflows and document management.
- Collaborated with engineers and draftsmen to ensure design accuracy, enhancing project deliverables.

Assistant, Shop Organizer

Bodyworks Collision Center, Murrieta, CA

June 2019-February 2021

- Constructed equipment to improve shop organization/functionality.
- Organized technician and painter work areas.
- Practiced and enforced safety procedures.
- Improved efficiency of the detailing process.
- Painted walls of several thousand square feet of warehouse.

Director of Engineering

CathSecure, Salt Lake City, UT

February 2024-May 2024

- Led the design and prototyping of a novel catheter-to-shunt connection device, utilizing 2-Photon Polymerization 3D-printing for precise, to-scale prototyping.

- Won the Best in Business award ($5,000) at the Bench to Bedside competition by creating a comprehensive business plan, engineering design package, and poster presentation.
- Authored significant portions of a provisional patent, detailing engineering drawings and protecting innovative product designs.
- Managed project timelines, resources, and deliverables to meet critical deadlines for competition and patent filing.
- Collaborated with a multidisciplinary team to drive product development from ideation to prototyping.
- Presented the product and business plan to judges during competition night, effectively showcasing technical and entrepreneurial expertise.

PROJECTS

- Authored a 20-page analysis of the molten salt synthesis of carbon nanotubes - Advised by Prof. Michael Simpson
- Wrote a paper on the dangers of lithium production for electric car batteries
- Rebuilt a motorcycle with friends
- Rebuilt Honda Civic engine with friend

TECHNICAL SKILLS

Analytical Techniques

Scanning Electron Microscopy (SEM) X-Ray Diffraction (XRD) UV-Vis Spectroscopy
Energy Dispersive Spectroscopy (EDS) Plasma Laser Deposition (PLD) Instron Mechanical Testing

Synthesis Methods

Solid State Synthesis Molten Salt Synthesis Sol-Gel Synthesis Wire Rolling/Pulling

Computer Skills

Autodesk Inventor, Revit, Fusion 360 Adobe Photoshop and Illustrator Python Origin

AWARDS & ACCOMPLISHMENTS

Temecula Valley High School Mountain Bike Team - Team Captain (Spring 2019, 2020)
Boy Scouts of America - Eagle Scout (Achieved 2017)
Engineering and Design Career Technical Education Certification (2018)
Graphic Design Career Technical Education Certification (2019)
Read 52 books in 52 weeks (2021)
Graduated high school early as a dual enrollment student (2020)

INTERESTS

Nanoengineering Research publishing Coding Drafting and Design Mountain & Road Biking
Motorcycles & cars 3D Printing Electric Motors Reading Podcasts Space & Rockets
Entrepreneurship