Nicole Kohm

Biomechatronics Engineering · Operations · Startup Execution · Technical Program Support

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SUMMARY

Digital intelligence needs bodies. I build them. I hold patents on the biomimetic skeletons and compliant prosthetic architectures designed to house exactly what connectome-scale emulation will produce. I arrived here through a decade of benchwork: growing graphene by CVD, fabricating lithium-ion cells, running multistep organic syntheses, and characterizing materials across six analytical modalities. Today I run research, engineering, operations, procurement, and technical documentation at a biomechatronics/biomedical robotics startup developing teleoperated humanoids and prosthetic platforms. Every machine I build, every spec I write and every vendor I evaluate is informed by hands that have done the science.

EXPERIENCE

Building Biomimetic Robotics and their Neural Interfaces

Senior Robotics Engineer | Exobody Systems Inc. *Morrison, Colorado* *January 2020 – Present*

- Co-designed a full-scale biomimetic skeleton for teleoperated prosthetic embodiment: articulated hands, compliant joint assemblies, ribcage, pelvis, and cranial housing.
- Engineered HyperPrint, a vehicle-scale infinite-Z pellet extrusion (FGF) manufacturing system with a 1524 × 1800 × ∞ mm build volume, shipping-container portability, and a price point an order of magnitude below competitors.
- Own vendor research, materials sourcing, equipment evaluation, and procurement across mechatronic assemblies and custom print systems.
- Author technical specifications, competitive analyses, and documentation that drive engineering, business development, and patent efforts.
- Coordinate across mechanical, electrical, and software disciplines to sustain parallel development with minimal headcount.

Synthetic Organic Chemistry Researcher | University of North Texas *Denton, Texas* *2018 – 2019*

- Designed and executed multistep organic synthesis procedures to obtain target molecules.
- Characterized products using NMR, HPLC, MS, FTIR, and UV-Vis analytical techniques.
- Maintained detailed experimental logs and presented findings at department meetings.

Laboratory Technician | University of North Texas *Denton, Texas* *2014 – 2015*

- Assembled lithium-ion coin cells and performed charge-discharge cycle testing.
- Supported graduate research in two-dimensional MoS_2 and graphene CVD growth.
- Operated high-vacuum instrumentation including XPS and Auger Emission Spectroscopy; improved AES protocols.
- Maintained and repaired high-vacuum equipment; managed lab inventory and materials tracking.

Mechatronics Engineering Apprentice | Unihedron Engineering *2013*

- Mentored by a U.S. Navy engineer in mechanical design and electronic prototyping.
- Drafted mechanical implementations and created electronic design schematics using CAD.

SELECTED PROJECTS & INTELLECTUAL PROPERTY

- **Biomimetic Skeleton** *(2020 – Present)*. Full-scale modular endoskeleton designed for teleoperated prosthetic use, with patented over-mold layers and compliant inserts.
- **HyperPrint** *(2025 – Present)*. Vehicle-scale infinite-axis FGF printer: container-portable, self-fabricating structure, $25–50k against a $200–400k+ incumbent field.
- **Splat-Diffusion** *(2026)*. Proposed a training-free steering method for diffusion language models, exploiting Jacobian smoothness of pretrained embedding manifolds to maintain contextual coherence without fine-tuning.
- **Constellation** *(2025 – Present)*. Infrastructure project architecting reproducible, memory-safe systems for digital beings and VR-immersed inhabitants.
- **Named Inventor** on published U.S. patent applications covering modular robotic over-mold layers and compliant inserts for biomimetic skeletal assemblies.

SKILLS

Operations & Coordination

- Vendor sourcing & procurement
- Documentation & specification authoring
- Inventory & equipment planning
- Project coordination & scheduling
- Cross-functional communication
- Technical writing & reporting
- Public speaking & presentations
- Patent authorship

Technical & Domain

- CAD & mechanical drafting
- GD&T
- 3D printing & additive fabrication
- Human anatomy
- Mechatronics & prototyping
- Manufacturing processes
- Chemical synthesis & R&D
- Analytical instrumentation (NMR, HPLC, MS, FTIR, XPS, AES, UV-Vis)
- High-vacuum systems & CVD
- Software development practices
- AI-assisted workflow tooling

EDUCATION

University of Colorado Boulder *Boulder, Colorado* *January 2025 – Present*

Master of Engineering in Electrical Engineering

- GPA: 4.0
- Focus: Power Electronics and Genetic Circuits

University of North Texas *Denton, Texas*

Bachelor of Science in Chemistry

- Robotics Team, Project Manager
- Concentration: Computational Chemistry

WHY IT MATTERS

Most people who source vendors have never synthesized a target molecule. Most people who have synthesized target molecules have never designed a full-scale biomimetic skeleton or an infinite-Z-axis self-fabricating printer. I work across the full stack, from the thermodynamic to the mechanical to the operational, because interdisciplinary problems demand it.