

## Kelvin Chen

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### CONTACT INFORMATION

University of Virginia  
College of Arts & Sciences  
Charlottesville, VA 22904

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### RESEARCH INTERESTS

Translational neuroscience, mechanisms of neurovascular pathology, computational and experimental disease modeling, neurological surgery, marker discovery, integrative omics, quantitative imaging

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### EDUCATION

**University of Virginia** Charlottesville, VA  
*B.A., Neuroscience & B.A., Chemistry; Minor, Bioethics* Aug 2022 – May 2026 (*Expected*)  
• GPA: –

**Virginia Peninsula Community College** Hampton, VA  
*Dual Enrollment, Biological Sciences & Mathematics* Sept 2020 – Jun 2022  
• GPA: 4.00

**Woodside High School** Newport News, VA  
*Advanced Studies Diploma* Sept 2018 – Jun 2022  
• GPA: 4.61/3.98 (W/UW), Rank: 1/381

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### RESEARCH EXPERIENCE

**UVA School of Medicine, Center for Brain Immunology and Glia** Charlottesville, VA  
*Undergraduate Researcher, Department of Neurosurgery & Neuroscience* Jan 2024 – Present  
Advisor: [Petr Tvrdik, Ph.D.](#)  
• Mapped cortical myeloid cell dynamics in situ in focal cerebral ischemia models of stroke in Iba1-Dre and/or LysM-Cre transgenic mouse models with the intersectional *RC::RLTG* dual-recombinase reporter system.

*Undergraduate Researcher, Department of Neuroscience* Aug 2023 – Jan 2024  
Advisor: [Lulu Jiang, M.D., Ph.D.](#)  
• Investigated the cellular mechanism underlying nuclear membrane disruption and nucleocytoplasmic translocation of RNA-binding proteins and transcripts triggered by tau pathology in Alzheimer's disease using mouse and iPSC-derived human organoid models.

*Undergraduate Researcher, Department of Pharmacology* Sep 2022 – May 2023  
Advisor: [Julius Zhu, Ph.D.](#)  
• Optimized a genetically encoded sensor-based image visualization and analysis algorithm to probe neuromodulatory synaptic activities and characterize neurotransmitter properties at the nanoscopic scale.

**Barrow Neurological Institute, Neuroimaging Innovation Center** Phoenix, AZ  
*Research Intern, Department of Translational Neuroscience* May 2024 – Aug 2024  
Advisor: [Richard Dortch, Ph.D.](#)  
• Performed numerical diffusion signal simulations in silico to optimize and validate peripheral nerve-specific computational models using the spherical mean technique and tested the impact of varying imaging parameters on the precision and accuracy of derived estimates.

*Research Intern, Department of Translational Neuroscience* May 2023 – Aug 2023  
Advisor: [Richard Dortch, Ph.D.](#)  
• Modeled multi-compartmental diffusion MRI signals in pre-clinical rat models of peripheral nerve trauma based on segmented histological images to derive diffusion tensor imaging- and spherical mean technique-based metrics for monitoring axonal re/degeneration.

- Analyzed the role of gold nanoparticles in the inhibition of SARS-CoV-2 via biochemical and mathematical modeling in a kinetic ODE system and their synergistic effect with antiviral drugs in the targeting of viral spike and nucleocapsid antigens.

## PUBLICATIONS

### Editorials

- [E.6] **Chen, K.**, *A Neuroethical Discourse on the Application of Optogenetics for Memory Modification*. Grounds: The Virginia Journal of Bioethics, 2023 [[URL](#)]
- [E.5] **Chen, K.**, *Therapeutic Nihilism in Disorders of Consciousness Care and the Right to Live*. Grounds: The Virginia Journal of Bioethics, 2023 [[URL](#)]
- [E.4] **Chen, K.**, *On the Psychological Disembodiment of Autonomy and Agency in Patients with Brain-Computer Interface Implants*. Grounds: The Virginia Journal of Bioethics, 2023 [[URL](#)]
- [E.3] **Chen, K.**, *Moral Status in Cerebral Organoids, Gastruloids, and Chimeras*. Grounds: The Virginia Journal of Bioethics, 2023 [[URL](#)]
- [E.2] **Chen, K.**, *The Inadvertent Consequences of Scanning the Human Brain*. Grounds: The Virginia Journal of Bioethics, 2023 [[URL](#)]
- [E.1] **Chen, K.**, *Towards a Brave New World: The Huxleyan Reality of Using Pharmacological Neuroenhancement*. Grounds: The Virginia Journal of Bioethics, 2023 [[URL](#)]

## PRESENTATIONS

### Posters

- [P.3] **Chen, K.**, Sharifi, K. A., Tyrdik, P. *Focal Cerebral Ischemia-Induced Phenotypic Plasticity in Recombinase-Mediated Myeloid Cell Subtypes (in preparation)*.
- [P.2] **Chen, K.**, Ketsiri, T., Dortch, R. D. *Microstructural Analysis of Nervous Tissues by Imaging to Simulate Diffusion MRI Signals Following Peripheral Nerve Trauma*. Barrow Neurological Institute Undergraduate Research Symposium, Phoenix, AZ, Aug 2024.
- [P.1] **Chen, K.**, Sadrabadi, M. S., Dortch, R. D. *Geometry-Informed Multi-Compartmental Diffusion MRI Modeling of Injured Peripheral Nerves*. Barrow Neurological Institute Undergraduate Research Symposium, Phoenix, AZ, Aug 2023 [[PDF](#)]

## TEACHING EXPERIENCE

### UVA Department of Chemistry

Charlottesville, VA

*Undergraduate Teaching Assistant*

- CHEM 2311 Organic Chemistry Laboratory I (for Non-Chemistry Majors) FA 2024
- CHEM 1810 Principles of Chemical Structure (Accelerated) FA 2024
- CHEM 2321 Organic Chemistry Laboratory II (for Non-Chemistry Majors) SP 2024
- CHEM 2311 Organic Chemistry Laboratory I (for Non-Chemistry Majors) FA 2023
- CHEM 1811 Principles of Chemical Structure Laboratory (Accelerated) FA 2023

### UVA Department of Psychology

Charlottesville, VA

*Undergraduate Teaching Assistant*

- PSYC 3210 Research Methods: Psychobiology Laboratory SP 2024

PROFESSIONAL SERVICES	<b>UVA Office of Citizen Scholar Development</b>	Charlottesville, VA
	<i>Symposium Volunteer</i>	Apr 2023 – Present
	<ul style="list-style-type: none"> <li>Undergraduate Research Symposium</li> </ul>	
	<i>Editorial Board Staff</i>	Sept 2022 – Present
	<ul style="list-style-type: none"> <li>The Oculus: The Virginia Journal of Undergraduate Research</li> </ul>	
	<b>W. M. Keck Center for Cellular Imaging</b>	Charlottesville, VA
	<i>Microscopy Workshop Volunteer</i>	Mar 2024
	<ul style="list-style-type: none"> <li>21st Annual FRET, FLIM, &amp; FLIRR Microscopy Workshop</li> </ul>	
ADDITIONAL ACTIVITIES	<ul style="list-style-type: none"> <li><b>Editor</b>, Grounds: The Virginia Journal of Bioethics</li> </ul>	Jun 2023 – Present
	<ul style="list-style-type: none"> <li><b>Senior Mandarin Translator</b>, The Cavalier Daily</li> </ul>	Feb 2023 – Present
	<ul style="list-style-type: none"> <li><b>Investigator</b>, University Judiciary Committee</li> </ul>	Sept 2022 – Present
	<ul style="list-style-type: none"> <li><b>Senior Associate</b>, The Blosson Together Association</li> </ul>	Sept 2022 – Present
	<ul style="list-style-type: none"> <li><b>Surgical Supply Volunteer</b>, UVA Health University Hospital</li> </ul>	Sept 2022 – May 2023
HONORS & AWARDS	<ul style="list-style-type: none"> <li><b>Echols Scholarship</b>, UVA</li> </ul>	2023
	<ul style="list-style-type: none"> <li><b>University Achievement Award Scholarship (\$80,000)</b>, UVA</li> </ul>	2022
	<ul style="list-style-type: none"> <li><b>Distinguished Research Mentorship Award</b>, NHREC GSST</li> </ul>	2022
TECHNICAL SKILLS	<ul style="list-style-type: none"> <li><b>Programming</b>: MATLAB, Python, R, Julia, C/C++, SQL, HTML/CSS, JavaScript</li> </ul>	
	<ul style="list-style-type: none"> <li><b>Softwares</b>: <math>\text{\LaTeX}</math>, Microsoft Offices, ImageJ, ZEN, GraphPad Prism</li> </ul>	
	<ul style="list-style-type: none"> <li><b>Operating Systems</b>: Windows, Linux, MacOS</li> </ul>	
AFFILIATIONS	<ul style="list-style-type: none"> <li><b>American Neurological Association</b>, Member</li> </ul>	Jun 2024 – Present
REFERENCES	<b>Petr Tvrdik, Ph.D.</b> Assistant Professor Department of Neurosurgery & Neuroscience UVA School of Medicine <a href="mailto:pt8bm@virginia.edu">pt8bm@virginia.edu</a>	<b>Richard Dortch, Ph.D.</b> Associate Professor Department of Translational Neuroscience Barrow Neurological Institute <a href="mailto:richard.dortch@barrowneuro.org">richard.dortch@barrowneuro.org</a>
	<b>Ammasi Periasamy, Ph.D.</b> Professor Department of Biology & Biomedical Engineering University of Virginia <a href="mailto:ap3t@virginia.edu">ap3t@virginia.edu</a>	<b>Jason Chruma, Ph.D.</b> Assistant Professor Department of Chemistry University of Virginia <a href="mailto:jjc5p@virginia.edu">jjc5p@virginia.edu</a>