

Kelvin Chen

CONTACT INFORMATION

University of Virginia
College of Arts & Sciences
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RESEARCH INTERESTS

Translational neuroscience, computational and experimental disease modeling, neuropathological and cerebrovascular mechanisms of nervous system disorders, omics-based clinical discovery

EDUCATION

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

New Horizons Governor's School for Science & Technology Hampton, VA
Dual Enrollment with VPCC, Biological Sciences & Mathematics Sept 2020 – Jun 2022
• GPA: 5.00/5.00

Woodside High School Newport News, VA
Advanced Studies Diploma Sept 2018 – Jun 2022
• GPA: 4.61/4.00 (Weighted), Rank: 1/381

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 Tvrdek, 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 (*tentative*).

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.

Hampton University
Research Intern, Department of Chemistry & Biochemistry
 Advisor: [Peter Njoki, Ph.D.](#)

Hampton, VA
 Sept 2021 – Mar 2022

- Probed the kinetic behavior of gold nanoparticles in COVID-19 diagnosis and its mediating effect with antiviral drugs in the targeting of the SARS-CoV-2 RdRp via biochemical and mathematical modeling.

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., Tvrdik, P. *Phenotypic Plasticity in Recombinase-Mediated Myeloid Cell Subtypes Following Focal Cerebral Ischemia (in preparation)*.
- [P.2] **Chen, K.**, Ketsiri, T., Dortch, R. D. *Microstructural Analysis of Nervous Tissues by Imaging to Simulate Diffusion MRI Signals for Applications in Peripheral Neuropathy*. BNI Undergraduate Research Symposium, Phoenix, AZ, Aug 9, 2024 (*in preparation*)
- [P.1] **Chen, K.**, Sadrabadi, M. S., Dortch, R. D. *Geometry-Informed Multi-Compartmental Diffusion MRI Modeling of Injured Peripheral Nerves*. BNI Undergraduate Research Symposium, Phoenix, AZ, Aug 11, 2023 [[PDF](#)]

HONORS & AWARDS

Echols Scholarship, UVA Aug 2023
Awarded to 5% of undergraduates in the College of Arts & Sciences for academic excellence and intellectual leadership

Distinguished Research Mentorship Award, NHGSST Jun 2022
Awarded to three seniors for excellence in research based on their research project

University Achievement Award Scholarship, UVA Mar 2022
Awarded to 50 in-state students from disadvantaged backgrounds on the basis of academic merit, leadership, public service, citizenship, diversity, and character; covers full-tuition for four years

TEACHING EXPERIENCE	UVA Department of Chemistry	Charlottesville, VA
	<i>Undergraduate Teaching Assistant</i>	
	• CHEM 2311 Organic Chemistry Laboratory I (for Non-Chemistry Majors)	Fall 2024
	• CHEM 1810 Principles of Chemical Structure (Accelerated)	Fall 2024
	• CHEM 2321 Organic Chemistry Laboratory II (for Non-Chemistry Majors)	Spring 2024
	• CHEM 2311 Organic Chemistry Laboratory I (for Non-Chemistry Majors)	Fall 2023
	• CHEM 1811 Principles of Chemical Structure Laboratory (Accelerated)	Fall 2023
	UVA Department of Psychology	Charlottesville, VA
	<i>Undergraduate Teaching Assistant</i>	
	• PSYC 3210 Research Methods: Psychobiology Laboratory	Spring 2024
PROFESSIONAL SERVICES	UVA Office of Citizen Scholar Development	Charlottesville, VA
	<i>Symposium Volunteer</i>	Apr 2023 – Present
	• Undergraduate Research Symposium	
	<i>Editorial Board Staff</i>	Sept 2022 – Present
	• The Oculus: The Virginia Journal of Undergraduate Research	
	W. M. Keck Center for Cellular Imaging	Charlottesville, VA
	<i>Microscopy Workshop Volunteer</i>	Mar 2024
	• 21st Annual FRET, FLIM, & FLIRR Microscopy Workshop	
ADDITIONAL ACTIVITIES	• Editor , Grounds: The Virginia Journal of Bioethics	Jun 2023 – Present
	• Senior Mandarin Translator , The Cavalier Daily	Feb 2023 – Present
	• Investigator , University Judiciary Committee	Sept 2022 – Present
	• Senior Associate , The Blosson Together Association	Sept 2022 – Present
	• Surgical Supply Volunteer , UVA Health University Hospital	Sept 2022 – May 2023
TECHNICAL SKILLS	• Programming : MATLAB, Python, R, Julia, C/C++, SQL, HTML, JavaScript	
	• Softwares : L ^A T _E X, Microsoft Offices, ImageJ, ZEN, GraphPad Prism	
	• Operating Systems : Windows, Linux, MacOS	
AFFILIATIONS	• American Neurological Association , Member	Jun 2024 – Present

REFERENCES

Petr Tvrdik, Ph.D.

Assistant Professor
Department of Neurosurgery & Neuroscience
UVA School of Medicine
pt8bm@virginia.edu

Ammasí Periasamy, Ph.D.

Professor
Department of Biology & Biomedical Engineering
University of Virginia
ap3t@virginia.edu

Richard Dortch, Ph.D.

Associate Professor
Department of Translational Neuroscience
Barrow Neurological Institute
richard.dortch@barrowneuro.org

Jason Chroma, Ph.D.

Assistant Professor
Department of Chemistry
University of Virginia
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