Kelvin Chen

Contact Information

University of Virginia
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Research Interests

Clinical and translational neuroscience, nervous system disorders, neurological surgery, neural stem cell biology, neuroimaging, machine learning, applied neuroethics

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Education

University of Virginia, Charlottesville, VA — Aug 2022 – May 2026 (Expected)
- B.A., Neuroscience & Cognitive Science; Minor, Bioethics

N. H. Governor's School for Science & Technology, Hampton, VA — Sep 2020 – Jun 2022
- Dual Enrollment, Biological Sciences & Mathematics

Woodside High School, Newport News VA — Sep 2018 – Jun 2022
- Advanced Studies Diploma

Research Experience

University of Virginia School of Medicine, Charlottesville, VA
Undergraduate Researcher, Department of Neurosurgery — Jan 2024 – Present
Advisor: Petr Tvrdik, Ph.D.
- Performed proximal middle cerebral artery occlusion on rodent models to image and quantify focal ischemic stroke processes at the penumbra and infarcted sites in vivo.

Undergraduate Researcher, Department of Neuroscience — Aug 2023 – Present
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.

Barrow Neurological Institute, Phoenix, AZ — May 2023 – Aug 2023
Research Intern, Department of Translational Neuroscience
Advisor: Richard Dortch, Ph.D.
- Modeled multi-compartmental diffusion MRI signals in pre-clinical rat models of peripheral nerve trauma based on segmented histological sections to derive diffusion tensor imaging and spherical mean technique-based metrics for monitoring axonal re/degeneration.

University of Virginia School of Medicine, Charlottesville, VA — Sep 2022 – May 2023
Undergraduate Researcher, Department of Pharmacology
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 on the nanoscopic scale.

Hampton University, Hampton, VA — Sep 2021 – Mar 2022
Research Intern, Department of Chemistry & Biochemistry
Advisor: Peter Njoki, Ph.D.
- Explored the role of gold nanoparticles for COVID-19 diagnosis and its mediating effect with antiviral drugs to target the SARS-CoV-2 RdRp gene through biochemical and mathematical modeling.

Publications

Editorials

[E.1] **Chen, K.**, *Towards a Brave New World: The Huxleyan Reality of Using Pharmacological Neuroenhancement* Grounds: The Virginia Journal of Bioethics, 2023 [HTML]

[E.2] **Chen, K.**, *The Inadvertent Consequences of Scanning the Human Brain* Grounds: The Virginia Journal of Bioethics, 2023 [HTML]

[E.3] **Chen, K.**, *Moral Status in Cerebral Organoids, Gastruloids, and Chimeras* Grounds: The Virginia Journal of Bioethics, 2023 [HTML]

[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 [HTML]

[E.5] **Chen, K.**, *Therapeutic Nihilism in Disorders of Consciousness Care and the Right to Live* Grounds: The Virginia Journal of Bioethics, 2023 [HTML]

[E.6] **Chen, K.**, *A Neuroethical Discourse on the Application of Optogenetics for Memory Modification* Grounds: The Virginia Journal of Bioethics, 2023 [HTML]

Presentations

Posters

[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 Symposium, Phoenix, AZ, Aug 2023 [PDF]

Teaching Experience

University of Virginia, Charlottesville, VA

Undergraduate Teaching Assistant, Department of Psychology — Spring 2024
- PSYC 3210: Research Methods: Psychobiology Laboratory

Undergraduate Teaching Assistant, Department of Chemistry — Spring 2023
- CHEM 2321: Organic Chemistry Laboratory II (for Non-Chemistry Majors/Minors)

Undergraduate Teaching Assistant, Department of Chemistry — Fall 2023
- CHEM 2311: Organic Chemistry Laboratory I (for Non-Chemistry Majors/Minors)

Undergraduate Teaching Assistant, Department of Chemistry — Fall 2023
- CHEM 1811: Principles of Chemical Structure Laboratory (Accelerated)

Honors & Awards

- Echols Scholarship, UVA — Aug 2023
- Distinguished Research Mentorship Award, NHGSST — Jun 2022
- Valedictorian, WHS — Jun 2022
- University Achievement Award Scholarship, UVA — Apr 2022

Technical Skills

- Programming Languages: MATLAB, R, HTML
- Softwares: LaTeX, Microsoft Offices, ImageJ/Fiji, ZEN, CellProfiler

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Service & Outreach

- Microscopy Workshop Volunteer, *W. M. Keck Center for Cellular Imaging* Mar 2024
- Editor, *Grounds: The Virginia Journal of Bioethics* Jun 2023 – Present
- Senior Translator, *The Cavalier Daily* Feb 2023 – Present
- Copy Editor, *Oculus: The Virginia Journal of Undergraduate Research* Sep 2022 – Present
- Investigator, *University Judiciary Committee* Sep 2022 – Present
- Senior Associate, *The Blosson Together Association* Sep 2022 – Present
- Surgical Supply Volunteer, *UVA Health University Hospital* Sep 2022 – May 2023

References

Petr Tvrdik, Ph.D.
Assistant Professor of Neurosurgery
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Lulu Jiang, M.D., Ph.D.
Assistant Professor of Neuroscience
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Richard Dortch, Ph.D.
Associate Professor of Imaging Research
Department of Translational Neuroscience
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Jason Chruma, Ph.D.
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