

CONTACT INFORMATION	<a href="mailto:jrp24@sas.upenn.edu">jrp24@sas.upenn.edu</a>	(850) 559-4266
BRIEF PERSONAL STATEMENT	<p>Ever since I was eight, I have only wanted to be a neurosurgeon. In the broad field of neuroscience, piquing my interest the most is the use of brain-computer interfaces in treating neural repair—including recovery after spinal cord injury, traumatic brain injury, stroke, and neurodegenerative diseases.</p> <p>Through working in the Song Lab since 2021, I’ve had the chance to lead projects focused on axon regeneration under Dr. Yuanquan Song. Our work has uncovered genetic targets that can be manipulated to boost regeneration. Through my clinical experiences, I have seen the remarkable intersection of technology and neurosurgery—including in treatments like deep brain and spinal cord stimulation. I have focused thus far on physical sciences, through the Vagelos Molecular Life Sciences program under the guidance of Drs. Jeffery Saven and Elizabeth Rhoades, and independent applied math studies with Dr. Yoichiro Mori. Because of my coursework and Teaching Assistant positions in Laboratory Electronics under Dr. Bill Ashmanskas, I feel incredibly inspired and equipped to advance the technology used in neurosurgery. <b>None of my success would have been possible without great mentors.</b></p> <p>These experiences provide me with a unique perspective as I pursue a career as a physician-scientist. I believe brain-computer interfaces are the future of neuroscience and neurosurgery; I couldn’t be more excited to help push this field forward.</p>	
EDUCATION	<b>University of Pennsylvania</b> Biochemistry & Biology Vagelos Molecular Life Sciences Scholar ( <a href="#">link</a> )	2020 – present
	<b>Chiles High School</b> Florida State University Dual Enrollment Salutatorian	2016 – 2020
HONORS AND AWARDS	Vagelos Challenge Award ( <a href="#">link</a> ) AXA Achievement Scholarship ( <a href="#">link</a> )	2023 2020
RESEARCH	ORCID: ( <a href="#">link</a> ); Google Scholar: ( <a href="#">link</a> ) Interests: Brain-computer interfaces, neural regeneration, technology in neurosurgery	
	<b>Song Lab</b> ( <a href="#">link</a> ) Children’s Hospital of Philadelphia Led projects focused on axon regeneration	2021 – present
	<b>Rokyta Lab</b> ( <a href="#">link</a> ) Florida State University Sponsored by the Young Scholars Program ( <a href="#">link</a> ) Project focused on venom evolution	Summer 2019

TEACHING	<b>Teaching Assistant</b>	
	PHYS 3364, Laboratory Electronics ( <a href="#">link</a> )	Fall, 2023
	BIOL 3310, Principles of Human Physiology ( <a href="#">link</a> )	Fall, 2023
	PHYS 3364, Laboratory Electronics ( <a href="#">link</a> )	Spring, 2023
	<b>Tutoring</b>	
	Philadelphia HS for Girls, Science Olympiad, weekly	Spring, 2023
	Central HS, Science Olympiad, weekly	Fall, 2022
SCIENCE OLYMPIAD	<b>Science Olympiad at UPenn (SOUP) (<a href="#">link</a>)</b>	
	Invitational competition hosting $\approx$ 1000 high school students	
	Co-President / Tournament Director	2022 – 2023
	Finance Director	2021 – 2022
	Operations Committee	2020 – 2021
	Finance Committee	2020 – 2021
	Exam Writer	2020 – present
	<b>Chiles Science Olympiad</b>	
	High school team, ranked 10 in Florida my final year	
	President	2018 – 2020
CLINICAL EXPERIENCE	Co-President	2017 – 2018
	Co-founder	2017
	<b>Shadowing</b>	
	Dr. Iahn Cajigas, MD, PhD, Neurosurgeon	Fall 2023
	Dr. Shih-Shan Lang Chen, MD, Pediatric neurosurgeon	Fall 2022
	Dr. Casey Halpern, MD, Neurosurgeon	Summer 2022
	<b>Volunteering</b>	
	Halpern Neurosurgery Clinic	Summer 2022
	Azalea Gardens Alzheimer's Clinic	2018 – 2019
	Capital Regional Med. Center	Summer 2018
COMPUTER SCIENCE	<b>GitHub:</b> ( <a href="#">link</a> )	
	<b>Courses On:</b> C++, Java, SAS, Unix; Soon: Python	<b>Experience With:</b> $\text{\LaTeX}$ , MatLab, Verilog, Arduino, HTML
PUBLICATIONS (PEER REVIEWED)	Shannon Trombley*, <a href="#">Jackson Powell</a> *, Pavi Guttipatti*, Andrew Matamoros, Xiaohui Lin, Tristan O'Harrow, Tobias Steinschaden, Leann Miles, Qin Wang, Shuchao Wang, Jingyun Qiu, Qingyang Li, Feng Li, and Yuanquan Song. Glia instruct axon regeneration via a ternary modulation of neuronal calcium channels in <i>Drosophila</i> . <i>Nature Communications</i> , Oct. 14, 2023. DOI: <a href="https://doi.org/10.1038/s41467-023-42306-2">https://doi.org/10.1038/s41467-023-42306-2</a>	
	*Equally contributing	
	Leann Miles, <a href="#">Jackson Powell</a> , Casey Kozak, and Yuanquan Song. Mechanosensitive Ion Channels, Axonal Growth, and Regeneration. <i>The Neuroscientist</i> , <b>Cover article</b> , Aug. 29, 2023. DOI: <a href="https://doi.org/10.1177/10738584221088575">https://doi.org/10.1177/10738584221088575</a>	
	<b>In Review:</b> Qin Wang, Leanne Miles, Shuo Wang, Harun N. Noristani, Ernest J. Monahan Vargas, <a href="#">Jackson Powell</a> , Sean J O'Rourke-Ibach, Shuxin Li, Yuanquan Song. Targeting and anchoring the mechanosensitive ion channel Piezo to facilitate its inhibition of axon regeneration. In Review at <i>Genes &amp; Development</i> .	

**In Review:** Jackson Powell, Tobias Steinschaden, Rose Horowitz, Yuanquan Song. Inciting the calcium channels, peripheral glia's tug-of-war on axon regeneration. In Review at *Neural Regeneration Research*.

(NON-PEER  
REVIEWED /  
OPINION PIECES)

Keren Bismuth, Vandana Sharma, Jackson Powell, ..., John M. Dedyo. Historical introductions. *Science*, Oct. 6, 2023. DOI: <https://doi.org/10.1126/science.adk8769>

Ashley Barbara Heim, ..., Jackson Powell, ..., Anna Uzonyi. AI in search of human help. *Science*, July 14, 2023. DOI: <https://doi.org/10.1126/science.adi8740>

Garima Singh, ..., Jackson Powell, Sai Sarnala. The fruits of failure. *Science*, Jan. 5, 2023. DOI: <https://doi.org/10.1126/science.adg1443>

Rui Tang, ..., Jackson Powell, Samuel Nathan Kirshner. When internships disappoint. *Science*, Oct. 6, 2022. DOI: <https://doi.org/10.1126/science.ade6397>

Jackson Powell. Puzzling Topics in Neuroscience. *UPenn Career Services*, Jan. 19, 2022. ([link](#))

Jackson Powell. Review: Harakiri. *Penn Moviegoer*, Nov. 18, 2021. ([link](#))

FEATURES

Peering beyond the haze of alien worlds, and how failures help us make new discoveries. *Science Magazine Podcast* (Jan. 12, 2023) ([link](#))

PRESENTATIONS

Jackson Powell. The mechanosensitive ion channel Piezo's role in the growth cone. *Center for Undergraduate Research & Fellowships Symposium*, (Sept. 18, 2023), ([link](#))

Jackson Powell. The mechanosensitive ion channel Piezo's role in the growth cone. *Vagelos Molecular Life Sciences*, **10 mins**. (June 27, 2023)

Jackson Powell. Glial control of axon regeneration through voltage gated calcium channels. *Developmental Neuroscience*, **25 mins**. (Nov. 16, 2022)

Jackson Powell. Glial control of axon regeneration through neuronal voltage gated calcium channels. *Vagelos Molecular Life Sciences*, **10 mins**. (July 4, 2022)

Jackson Powell\* & Kevin Bryan\*. The Novel Role of Trpml and Btv in *Drosophila* Mechanosensation and Decision Making. *Children's Hospital of Philadelphia Poster Symposium*, (May 25, 2022)

\*Equally contributing

Jackson Powell. Glial control of neuron regeneration. *Joint CCMT Lab Meeting*, **30 mins**. (April 27, 2022)

Jackson Powell\*, Alec Fernandes\*, Arianna Zhai\*. The Venom of the *Dolomedes triton*: functional effects on allopatric and sympatric prey items. *Young Scholars Program Symposium*. (July 26, 2019) ([link](#))

Song Lab Meetings: Jackson Powell, **60-90 mins each**. July 6, 2021; Oct. 12, 2021; Feb. 28, 2022; Aug. 2, 2022; Jan. 10, 2023; June 20, 2023.

GRANTS / STIPENDS	Vagelos Molecular Life Sciences	\$10,000	Summer 2023
	UPenn Common Research Grant	\$1,000	2023
	Vagelos Molecular Life Sciences	\$11,000	Summer 2022
	Ben Art Bucks	\$250	2022
	UPenn CURF	\$4,500	Summer 2021
	Young Scholars Program	\$3,000	Summer 2019

PERSONAL PROJECTS Below are some personal projects I've put quite a bit of time into. They're mostly for fun, and or, for the sake of learning. Perhaps they will turn into something, someday.

**Brain-Spine-Muscle Interfaces Textbook** ([link](#))

This is effectively a massive notes document, where I am aggregating much of what I learn about electronics, neuroscience, and brain-computer interfaces.

**Neuron / Ion Channel Modeling** ([link](#))

This is a modeling project / independent study I worked on under the guidance of Dr. Yoichiro Mori, aiming to model neurons and the ion channel Piezo.

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SELECT REFERENCES Please feel free to contact the following references, or any of my previous professors, for more information about me.

Yuanquan Song, PhD, [songy2@chop.edu](mailto:songy2@chop.edu)  
Principal Investigator, Children's Hospital of Philadelphia  
Assistant Professor of Pathology and Laboratory Medicine, University of Pennsylvania

William Ashmanskas, PhD, [ashmansk@hep.upenn.edu](mailto:ashmansk@hep.upenn.edu)  
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Co-Chair, Biochemistry Undergraduate Major Program  
Co-Director, Vagelos Molecular Life Sciences

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Please feel free to reach out to me with questions or ideas for collaboration ([email](#)). It would be a pleasure to hear from you.