

**CURRICULUM VITAE**  
**DANIEL ALEXANDER ALBER**



**EDUCATION**

M.D.	<b>New York University Grossman School of Medicine</b> Vilcek Merit Scholar	C/O 2026
Sc.B.	<b>Brown University</b> Honors in Applied Mathematics-Biology Thesis: <i>"A Statistical Framework for the Analysis of Directed Interactions in Stereotactic EEG Data"</i>	May 2022

**RESEARCH INTERESTS**

Objective Surgical Skill Assessment With Computer Vision PIs: Eric Oermann MD, Brock Hewitt MD	2024-present
Artificial Intelligence-Augmented Thoracic Imaging PIs: Eric Oermann MD, Robert Cerfolio MD	2024-present
Security Risks in Healthcare Large Language Models PI: Eric Oermann MD	2023-present
Computer Vision for Intraoperative Brain Tumor Pathology PIs: Daniel Orringer MD, Todd Hollon MD	2020-2023
Statistical Neuroscience and Functional Connectivity in Epilepsy PI: Wilson Truccolo PhD	2021-2022
Biostatistics and Public Health, Trauma Systems PI: Molly Jarman PhD	2018-2020

**AWARDS & HONORS**

Best Data Science Award Congress of Neurological Surgeons 2023 Annual Meeting	September 2023
Summer Research Fellowship (\$1000) NYU Grossman School of Medicine	June 2023
NREF Medical Student Summer Research Fellowship (\$2500) Neurosurgery Research and Education Foundation	June 2023

Vilcek Full Cost-of-Attendance Merit Scholarship (\$400,000) NYU Grossman School of Medicine	2022-2026
Sigma Xi Scientific Research Honor Society Brown University	May 2022
Departmental Honors, Division of Applied Mathematics Brown University	May 2022
Win Wilson '51 Service Award Brown University Swimming and Diving	April 2022
Karen T. Romer Undergraduate Teaching and Research Award (\$2500) Truccolo Lab, Brown University	May 2021
Featured Article, Journal of Surgical Research Center for Surgery and Public Health, Brigham and Women's Hospital	January 2021
Volunteer of the Month Rhode Island Free Clinic	November 2020
USA Swimming Scholastic All-American	2016-2018

## PUBLICATIONS

1. **Alber DA**, et al. *Medical large language models are vulnerable to attack*. (To Appear, Nature Medicine)
2. Kurland DB\*\*, **Alber DA\*\***, et al. *Augmenting Large Language Models with Automated, Bibliometrics-Powered Literature Search for Knowledge Distillation: A Pilot Study for Common Spinal Pathologies*. (In revision, Neurosurgery; \*\*equal contribution)
3. Visvanath K, et al. (including **Alber DA**). *MedMobile: A mobile-sized language model with expert-level clinical capabilities*. (Preprint in review, NPJ Digital Medicine)
4. Rosenbaum G, et al. (including **Alber DA**) *MedG-KRP: Medical Graph Knowledge Representation Probing*. (Preprint in review, Machine Learning for Health)
5. Yao LJ, **Alber DA**, et al., *Exploration of Risks of Clinical Notes Deidentification*. (Preprint in review, Machine Learning for Health)
6. Reinecke D et al. (including **Alber DA**). *Fast intraoperative detection of primary CNS lymphoma and differentiation from common CNS tumors using stimulated Raman histology and deep learning*. (In review, Neuro-Oncology)
7. Hang C, et al. (including **Alber DA**). *BPQA Dataset: Evaluating How Well Language Models Leverage Blood Pressures to Answer Biomedical Questions*. (Preprint)
8. Alyakin A, Kurland DB, **Alber DA**, et al. *CNS-CLIP: Transforming a Neurosurgical Journal into a Multimodal Medical Model*. Neurosurgery, 2024.
9. Kurland DB, **Alber D**, et al. *What Are We Transfusing? Evaluating the Quality and Clinical Utility of Intraoperatively Salvaged Red Blood Cells in Spinal Deformity Surgery: A Nonrandomized Controlled Trial*. Neurosurgery (Cover article), 2024.
10. Sangwon KL et al. (including **Alber DA**). *Predicting STA-MCA Anastomosis Patency Using FLOW800*. Journal of Neurosurgery, 2024.
11. Eremiev A et al. (including **Alber DA**). *The History of Bellevue Neurosurgery: A Legacy of Learning and Service*. Journal of Neurosurgery, 2024.

12. Mir Jamshaid M et al. (including **Alber D**). *The Evolution of Pediatric Spine Surgery: A Bibliometric Analysis of Publications from 1902-2023*. Neurosurgery Practice, 2024.
13. Nasir-Moin M et al. (including **Alber D**). *Localization of protoporphyrin IX in glioma patients with paired stimulated Raman histology and two-photon excitation fluorescence microscopy*. Nature Biomedical Engineering, 2024.
14. Jiang C et al. (including **Alber D**). *Rapid Automated Analysis of Skull Base Tumor Specimens Using Intraoperative Optical Imaging and Artificial Intelligence*. Neurosurgery (Cover article), 2022.
15. **Alber DA** et al. "A Multistate Study of Race and Ethnic Disparities in Access to Trauma Care. Journal of Surgical Research (Featured article), 2021.

## ABSTRACTS & POSTERS

1. Bi CL et al. (Presented by **Alber DA**). *Digital Biomarkers and the Evolution of Spine Care Outcomes Measures: Smartphones and Wearables*. Oral Presentation. 2024 Congress of Neurological Surgeons. Spine Paper of the Year Award.
2. Kurland D, **Alber DA**, et al. *Bibliometrics-Guided AI-Powered Knowledge Distillation for Common Spinal Pathologies*. 2024 Spine Summit. Las Vegas, NV.
3. **Alber DA**. *Large Language Models to Automate Chart Review of an Institutional Hydrocephalus Shunt Database*. Brown University SNRC 2024.
4. **Alber DA** et al. *A Deep Learning-Based Method for Rapid, Patient-Specific Assay of Macrophage Infiltration in High-Grade Glioma Using Label-Free Stimulated Raman Histology*. Poster. 2023 Society for Neuro-Oncology. Vancouver, BC.
5. **Alber DA** et al. *Deep Learning-Based Image-to-Image Translation to Identify Macrophage Infiltration in High-Grade Glioma Using Label-Free Stimulated Raman Histology*. Oral Presentation. 2023 Congress of Neurological Surgeons. Washington, DC. Best Data Science award.
6. **Alber DA** et al. *Spine-Tuned Natural Language Models and Bespoke Regular Expression Classifiers for Automated Spinal Surgery Registry Development*. Oral Presentation. 2023 Congress of Neurological Surgeons. Washington, DC.
7. **Alber DA** et al. *ShuntBot: Fine-Tuning Large Language Models to Automate Construction of an Institutional Hydrocephalus Shunt Database*. Digital Poster. 2023 Congress of Neurological Surgeons. Washington, DC.
8. Kurland D, **Alber DA**, et al. *What Are We Transfusing? A Prospective Trial Evaluating the Quality of Intraoperatively Salvaged Red Blood Cells in Spinal Deformity Surgery*. Oral Presentation. 2023 Congress of Neurological Surgeons. Washington, DC. Best Resident Paper Award.
9. Sangwon KL, **Alber DA**, et al. *Generative Artificial Intelligence Framework for Synthetic MRIs of Brain Metastases Patients*. Digital Poster. 2023 Congress of Neurological Surgeons. Washington, DC.
10. Lock E, **Alber DA**, et al. *The Impact of Tumor Mutational Status on Protoporphyrin IX Accumulation in Tumor-Associated Macrophages in Glioblastoma Patients*. Oral Presentation. 2023 Congress of Neurological Surgeons. Washington, DC. Gladiator award.

11. Sangwon KL et al. (including **Alber DA**). *Predicting STA-MCA Anastomosis Patency Using FLOW800*. Oral Presentation. 2023 Congress of Neurological Surgeons. Washington, DC.
12. **Alber DA** et al. *Evaluating the Quality of Salvaged Blood Products Using Stimulated Raman Spectroscopy and Deep Learning*. 2023 Machine Learning for Healthcare. New York, NY.
13. Sangwon KL, Liu A, Rabbin-Birnbaum C, Wiggan DD, **Alber DA**, Nossek E. *Predicting STA-MCA Anastomosis Patency Using FLOW800*. 2023 European Association of Neurosurgical Societies.
14. Movahed-Ezazi M et al. (including **Alber D**). *Application of Stimulated Raman Histology as a Surrogate to Oil Red O for Intraoperative Diagnosis of Hemangioblastoma*. 2023 American Association of Neuropathologists. Monterey, CA.
15. Movahed-Ezazi M et al. (including **Alber D**). *Clinical Validation of Stimulated Raman Histology for Rapid Intraoperative Diagnosis of CNS Tumors*. 10th World Digital Pathology & AI UCG Congress. Berlin, Germany.
16. Kurland D, **Alber D**, Lau D. *What Are We Transfusing? A Prospective Trial Evaluating the Quality of Intraoperatively Salvaged Red Blood Cells in Spinal Deformity Surgery*. 2023 Spine Summit. Miami, FL.
17. Kurland D, **Alber D**, Lau D. *What Are We Transfusing? A Prospective Trial Evaluating the Quality of Intraoperatively Salvaged Red Blood Cells in Spinal Deformity Surgery*. 2023 International Meeting on Advanced Spine Techniques. Dublin, Ireland.
18. Kurland D, **Alber D**, Smith A, Hilbert T, Lau D. *Defining the Quality of Intraoperatively Salvaged Blood in Spinal Deformity Surgery and its Suitability for Autologous Transfusion: Preliminary Results of a Prospective Study*. Global Spine Congress 2023. Prague, Czech Republic. Best Science/Translational research paper award.
19. Nasir-Moin M et al. (including **Alber D**) *Quantitative Analysis of Tumor Cell Density and Protoporphyrin Ix Fluorescence in Glioma Patients Using Paired Stimulated Raman Histology and Two-photon Excitation Fluorescence Microscopy*. 2022 Society for Neuro-Oncology. Tampa Bay, FL.
20. Orringer DA et al. (including **Alber D**) *Cellular localization of protoporphyrin IX in glioblastoma*. 2022 American Academic of Neurological Surgery. Colorado Springs, CO
21. Bhattacharya A, **Alber D**, Hollon TC. *Single-Cell Phenotyping Using Optical Imaging and Artificial Intelligence*. 2022 Machine Learning for Healthcare. Durham, NC.
22. Shaikhouni A, Pindrik J, Arredondo K, Ostendorf A, **Alber D**, Ahrens S, Beatty C. *Invasive Investigation of Thalamocortical Epileptic Network Activity to Select Candidates for Deep Brain Stimulation of the Centromedian Nucleus Among Patients With Medically Intractable Epilepsy*. Oral Presentation. 2022 American Society for Stereotactic and Functional Neurosurgery. Atlanta, GA.
23. Shaikhouni A, **Alber DA**, Pindrik J, Ostendorf A, Beatty C, Ahrens S, Arredondo K. *Invasive Investigation of Thalamocortical Epileptic Network Activity to Select Candidates for Deep Brain Stimulation of the Centromedian Nucleus among Patients with Medically Intractable Epilepsy*. Poster. 2021 Nationwide Children's Hospital Surgical Research Day. Columbus, OH.
24. **Alber DA**, Li TS, Dalton MK, Uribe-Leitz PT, Jarman MP. *Prehospital Management of Traumatic Brain Injury: A Descriptive Analysis from the NEMSIS Database*. Poster. 2020 Brown University Public Health Research Day. Providence, RI.

25. Orlas C, Jarman MP, Uribe-Leitz PT, Castillo-Angeles M, **Alber DA**, Herrera-Escobar J, Nehra D. *Is There a 'Weekend Effect' for Traumatically Injured Patients in the United States?* 2020 Academic Surgical Congress. Orlando, FL.
26. **Alber DA**, Uribe-Leitz PT, Ortega G, Salim A, Haider AH, Jarman MP. *Multistate Study of Disparities in Trauma Care: Are People of Color at Higher Risk of Under-triage?* 2019 Academic Surgical Congress. Houston, TX.

## TEACHING

Anatomy, NYU Grossman School of Medicine <i>Anatomy teaching assistant for first-year medical students.</i>	Fall 2024
Data Science Course, Congress of Neurological Surgeons National Meeting <i>Full-day seminar with didactic and practical sessions covering essential data science topics.</i>	September 2024
OLAB, NYU Grossman School of Medicine <i>Lectured on software engineering topics and organized journal club to develop students' technical and presentation skills.</i>	Summer 2024
Foundational Clinical Skills, NYU Grossman School of Medicine <i>Led physical exam boot camp for first-year medical students.</i>	Summer 2023
OLAB, NYU Grossman School of Medicine <i>Lectured on medicine and software engineering topics while supervising high school and undergraduate data science interns.</i>	Summer 2023

## EXTRACURRICULAR ACTIVITIES

Admissions Interviewer, NYU Grossman School of Medicine	2023-present
Editorial Board, Agora Arts & Humanities Magazine, NYU Grossman SOM	2022-present
Admissions Ambassador, NYU Grossman School of Medicine	2022-present
Orientation Leader, NYU Grossman School of Medicine	Summer 2023
Volunteer, Hepatitis Project, NYU Grossman School of Medicine	2023
Co-President, AANS Student Chapter, NYU Grossman School of Medicine	2022-2023
Meiklejohn First-Year Advisor, Brown University	2020-2022
Applied Mathematics Peer Advising Leader, Brown University	2020-2022
Volunteer Medical Assistant, Rhode Island Free Clinic	2020-2022
NCAA Division I Athlete, Brown University Varsity Men's Swimming and Diving	2018-2022
Mathematics Grader, Calculus, Brown University	2021
Fundraising Team Captain, Swim Across America RI	2018-2021
Teaching Assistant, Organic Chemistry, Brown University	2020
Volunteer, Rhode Island Food Bank	2018-2020

## **BOARD EXAMINATIONS**

USMLE Step 1 – Pass (September 2023)

USMLE Step 2 – 263 (September 2024)

## **LANGUAGES**

English (Native)

Russian (Native)