

BIOGRAPHICAL SKETCH

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NAME: Cheng, Du

eRA COMMONS USER NAME (credential, e.g., agency login): cddddd168

POSITION TITLE: Resident

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	Start Date MM/YYYY	Completion Date MM/YYYY	FIELD OF STUDY
Henan University	BS	07/2007	06/2008	Biological Sciences
Humboldt State University	BS	07/2008	06/2011	Cell/Molecular Biology
Weill Cornell/Rockefeller U/Sloan-Kettering	MD-PhD	07/2013	06/2023	Medicine/ Neuroscience

A. Personal Statement

I grew up in China until I was 20 years old and came to the United States by myself. My inspiration for medicine partly came from my grandfather, who was a battlefield surgeon who began his training in muddy trenches as an infantryman, and partly from traveling to remote countryside areas in China to help people who do not have access to medical care. I was fortunate to come to the United States with limited funds and worked through undergraduate studies, post-baccalaureate research fellowships, and medical school to support myself and the family that I built here, eventually becoming a U.S. citizen. Along the way, I also obtained a PhD in neuroscience as part of the MSTP program and started a company that provides essential devices to pathology services at thousands of universities and clinics. I was privileged to work my way into the field of ophthalmology. My career goal is to become an excellent cataract and glaucoma surgeon. I bring my diverse background and experiences into my clinical practice every day, helping me build strong relationships with my patients. Furthermore, I hope to advance the field of eye surgery through research and device innovation.

B. Positions, Scientific Appointments and Honors**Positions and Scientific Appointments**

2009 - 2011 Undergraduate researcher, Humboldt State University
 2011 - 2013 CIRM (California Institute for Regenerative Medicine) Scholar, Stanford University
 2013 - 2014 Editor in Chief, Ascensus: Weill Cornell Journal of Humanities
 2014 - 2018 Founder and President, Eye-to-Eye Community Ophthalmology Screening Program
 2015 - 2021 PhD Candidate at Cori Bargmann's lab, The Rockefeller University
 2015 - now Founder and Owner, iDu Optics LLC (LabCam)
 2016 - 2018 Start-up Advisor and Maker Space supervisor, Weill Cornell Dean's Entrepreneurship Lab
 2017 - 2023 Founder and Owner, CranialSim
 2023 - now Co-founder, VentureBoard
 2023 - now Ophthalmology Resident, VCU Health Systems

Honors and Grants

2026	American Glaucoma Society INSPIRE Program, American Glaucoma Society
2025	Mentor of Tulsi Mehta, Best student presentation at VSEPS annual conference
2025	Consult Resident of the Year, VCU Health Systems Emergency Department
2024	Intern MVP of the month, VCU Health Systems Department of Internal Medicine
2023	Exemplary Senior Clinician, Well Cornell Community Clinic
2018	Crain's 40 Under 40, Crain's New York Business Magazine
2018	Outstanding Community Service Award, Weill Cornell Clinical & Translational Science Center
2017	1st Place WCM \$50K Biomedical Business Plan Challenge, Weill Cornell Medicine
2016 - 2018	Paul & Daisy Soros Fellowship (\$90,000), Paul and Daisy Soros Foundation
2016	1st Place Weill Cornell Bench to Bedside Initiative Shark Tank Pitch Day, WCM
2015 - 2016	Community Engagement Award (\$20,000), WCM Clinical & Translational Science Center
2014 - 2021	Weill Cornell Medicine 3D printing initiative (\$8900), WCM Dean's Office
2013	1st Place 27th Annual California State University Research Competition, CSU
2011 - 2013	CIRM Research Fellowship (\$35,000), California Institute for Regenerative Medicine
2011	Outstanding Student of the Year, Humboldt State University
2011	Howell-CSUPERB Research Scholars Award (\$3,000), California State University
2010 - 2011	Outstanding Contribution to Chinese-American Cultural Exchange, Chinese Embassy of USA
2010	ASM Undergraduate Research Fellowship (\$5000), American Society for Microbiology
2008 - 2010	Presidential Scholar, Humboldt State University
2009	HHMI Summer Research Scholarship (\$4000), Howard Hughes Medical Institute
2009	Exemplary First-Year Composition Portfolio, Humboldt State University

C. Contributions to Science

- 1. Early Career:** My early career contributions were focused on microbiology and entomology, studying microbe–host interactions in ticks and tick-borne diseases. I discovered and characterized two new *Rickettsia* species - one a symbiont and the other an emerging pathogen. We characterized these microbes' transmission patterns as well as their interactions with their hosts.
 - 1) **D. Cheng**, K. Vigil, P. Schanes, R. Brown, and J. Zhong. Prevalence and burden of two *Rickettsial* phylotypes in *Ixodes pacificus* from California by real-time qPCR, *Ticks and tick-borne diseases*, 2013 Jun;4(4):280-7.
 - 2) **D. Cheng**, R.S. Lane, and J. Zhong, Field and laboratory studies on the transmission of the spotted fever group *rickettsiae* by ticks (*Ixodes pacificus*). *Proc Pap Annu Conf Calif Mosq Control Assoc.* 2012. 80:123-127.
 - 3) **D. Cheng**, R. Lane, J. Zhong, Host blood meal-dependent growth ensures transovarial and transstadial passage of *Rickettsia* spp. in the *Ixodes pacificus* ticks, *Ticks and Tick-Borne Diseases*, 2013 Sep;4(5):421-6.
 - 4) A.H. Kurlovs, J. Li, **D. Cheng**, and J. Zhong, *Ixodes pacificus* ticks maintain embryogenesis and egg hatching after antibiotic treatment of *Rickettsia* endosymbiont., *PLOS One*, 2014 Aug 8;9(8):e104815
- 2. Post-Bachelor:** I was fortunate to be selected as a CIRM Scholar, funded by the California Institute for Regenerative Medicine, to conduct stem cell research at Stanford University for two years. I studied the role of the Wnt signaling pathway in multiple cell populations, including bone marrow stem cells and dental stem cells, and applied these findings through microsurgical implantation into the mouse renal capsule and cranial defects.
 - 5) **D. Cheng***, P. Leucht*, J. Jiang*, B. Liu*, ... , M.T. Longaker, and J.A. Helms. Wnt3a re-establishes osteogenic capacity to bone grafts from aged animals, *The Journal of Bone & Joint Surgery*, 2013;95(14), *contributed equally
 - 6) W. Jing, A.A. Smith, B. Liu B, J. Li, D.J. Hunter, ... , **D. Cheng**, ... , J.A.Helms. Reengineering autologous bone grafts with the stem cell activator WNT3A, *Biomaterials*. 2015 Apr;47:29-40.
 - 7) W.H. Lim, B. Liu, D.J. Hunter, **D. Cheng**, S.J. Mah, J.A. Helms. Downregulation of Wnt causes root resorption. *Am J Orthod Dentofacial Orthop.* 2014 Sep;146(3):337-45.
 - 8) Liu, S. Chen, **D. Cheng**, W. Jing, and J.A. Helms, Primary cilia integrate Hedgehog and Wnt signaling during tooth development, *J Dent Res*, 2014 May;93(5):475-82.

- 9) W.H. Lim, B. Liu, **D. Cheng**, B.O. Williams, S.J. Mah, and J.A. Helms. Wnt signaling regulates homeostasis of the periodontal ligament. *J Periodontal Res.* 2014 Dec;49(6):751-9
- 10) G. Dhamdhare, M. Fang, J. Jiang, R. Olveda, **D. Cheng**, B. Liu, ... , and J.A. Helms, Drugging a stem cell compartment using Wnt3a protein as a therapeutic, *PLOS One*, 2014 Jan 6;9(1):e83650
- 11) W.H. Lim, B. Liu, **D. Cheng**, D.J. Hunter, ... , and J.A. Helms. Wnt signaling regulates pulp volume and dentin thickness, *J Bone Miner Res*, 2014 Apr;29(4):892-901.

3. Graduate School: I received my graduate training through the Weill Cornell/Rockefeller/Sloan Kettering Tri-Institutional MD-PhD Program, funded by the NIH MSTP. During this time, I briefly worked on VEGF signaling during a summer rotation. I then joined Cori Bargmann's lab, where I studied the role of insulin-like signaling receptor substrates in olfactory learning by modulating a specific sensory neuron's firing threshold as well as glutamate neurotransmitter release when animals were presented with combinations of food and odor cues.

- 12) **D. Cheng**, J. Lee, M. Brown, M. Ebert, M. Tomioka, Y. Iino, C. Bargmann, Insulin/IGF receptor signaling regulates synaptic glutamate release in aversive olfactory learning and memory, *Cell Reports*. 2022 Nov 22;41(8):111685
- 13) A. Kedem, A. Aelion-Brauer, P. Guo, D. Wen, B. Ding, R. Lis, **D. Cheng**, ... , S. Rafii, Z. Rosenwaks, Activated ovarian endothelial cells promote early follicular development and survival, *J Ovarian Res.* 2017;10:64.

4. Ongoing Clinical and Technological Research: In addition to basic science, I have invented several devices and developed them into products. My first invention, the LabCam microscope adapter, plays a key role in pathology and slit-lamp image capture and is used in over 5,000 universities and clinics worldwide. The CranialSim craniostylosis surgical simulator is widely used to train neurosurgeons in cranial remodeling procedures. The EyeDu fundus camera I developed has been a key component of the long-standing Eye-to-Eye Community Ophthalmology Screening Program in New York, which I founded. I have also been fortunate to publish multiple case reports and studies alongside my medical student mentees.

- 14) **D. Cheng**, S. Deshmukh, L. Mabudian, W. Chow, N. Q. Richards-Walker, A Case of a Rapidly Progressing, Recurrent Orbital Mass, Sarcoidosis Vasculitis and Diffuse Lung Diseases. Accepted, 2026 April
- 15) **D. Cheng**, L. Mabudian, T. Mehta, W. Felton III, S. Bansal, Central Sparing Congruous Homonymous Sectoranopia in a Patient with Bilateral Vertebral Artery Dissection, *Neuro-Ophthalmology*. 2025 Nov
- 16) **D. Cheng**, R. Babij, D. Cabrera, M. Yuan, A. Port, A. McKenney, S. Van Tassel, G. Sun, Effective Low-Cost Ophthalmological Screening With a Novel iPhone Fundus Camera at Community Centers, *Cureus*. 2022 Aug;14(8):e28121.
- 17) **D. Cheng**, M. Yun, I. Perera, A. O'Connor, A. Evins, T. Imahiyerobo, M. Souweidane, C. Hoffmann, Developing a 3D composite training model for cranial remodeling. *Journal of Neurosurgery, Pediatrics*, 2019 Sep 20:1-10.
- 18) **D. Cheng**, Imaging Adapter for Microscope and Portable Electronic Device, Utility Patent US10466466B2
- 19) P.O. Emanuel, R. Patel, J. Zwi, **D. Cheng**, M. Izzard, Utility of teledermatopathology for intraoperative margin assessment of melanoma *in situ*. *European Journal of Surgical Oncology*, 2021 May;47(5):1140-4
- 20) A.I. Evins, J. Dutton, S.S. Imam, A.O. Dadi, T. Xu, **D. Cheng**, P.E. Stieg, A. Bernardo, On-demand intraoperative 3-D printing of custom cranioplastic prostheses, *Oper Neurosurg (Hagerstown)*. 2018 Sep 1;15(3):341-349.

Manuscripts in Review:

- 21) **D. Cheng**, J. Choi, J. Randolph, Cytomegalovirus panuveitis in a patient with latent tuberculosis on immunomodulator for pemphigus vulgaris, In submission
- 22) **D. Cheng**, Y. Shildkrot, Bilateral retinal pigment epithelium (RPE) atrophy following trastuzumab-deruxtecan (Enhertu) in a patient with choroidal metastasis breast cancer, in submission
- 23) **D. Cheng**, T. Mehta, S. Deshmukh, E. Silverstein, The Diagnostic Challenge in a Patient with Third Nerve Palsy with a Complex Medical-Social History, in submission

- 24) **D. Cheng**, C. Leffler, Book Chapter: History of Intraocular Lens, History of Biomaterials, In Print
- 25) **D. Cheng**, Neurosurgical Operation Simulator, Utility Patent Pending
- 26) **D. Cheng**, H. Ren, S. Bansal, Identifying Factors Affecting Visual Outcomes in Virginia, in submission
- 27) **D. Cheng**, S. Bansal, M. Daly, R. Fenton, P. Netland, B. Hodgdon, Y. Shobo, State of the Ophthalmology Workforce in Virginia, in submission
- 28) K. Selvan, B. Rinkavage, ..., **D. Cheng**, E. Silverstein, M. K. Daly, R. Sabo, S. Bansal, Evaluating the Acceptability of Virtual Reality Visual Field Testing in Rural Virginia, Nature Eye, in review