

KARAMARIE FECHO, PHD

www.copperlineprofessionalsolutions.com
kfecho@copperlineprofessionalsolutions.com

RESUME

PROFILE

Science and technology leader specializing in biomedical data and knowledge systems, community-driven open-science infrastructure, cross-sector collaboration, and biomedical and technical communications

- Exceptional critical-thinking skills and expertise in the translation of complex biomedical data and concepts into actionable insights, meaningful real-world outcomes, and clear and effective communications
- Extensive experience leading large, multidisciplinary teams in collaborative team-science environments, with a proven track record of securing funding support and delivering high-impact publications, products, and technologies
- Established proficiencies across a broad range of **biomedical domains**, including neurobiology, anesthesiology, immunology, pharmacology, psychology, psychoneuroimmunology, and toxicology, and **data science domains**, including data modeling, data integration, data governance, FAIR principles, privacy and security, federated knowledge systems, and sustainable data ecosystems

EDUCATION

PhD, Neurobiology | 1995

School of Medicine, University of North Carolina at Chapel Hill (UNC Chapel Hill)

BA, Psychology & Mathematics (*summa cum laude*) | 1990

Rutgers College, Rutgers University

CONTINUING EDUCATION¹

Technical Certificate, Python | 2024

Codecademy®

Professional Certificate, Medical Writing | 2009–2010

American Medical Writers Association

Graduate Certificate, Core Public Health Concepts | 2006–2009

UNC Gillings School of Global Public Health, UNC Chapel Hill

Fellowship, Clinical Research | 2004–2006

Clinical Research Scholars Program, School of Medicine, UNC Chapel Hill

Fellowship, Neurosensory Disorders and Pain Genetics | 2002–2003

Center for Neurosensory Disorders, UNC School of Dentistry, UNC Chapel Hill

Fellowship, Rheumatology and Immunology | 1995–1997

Department of Rheumatology and Immunology, UNC School of Medicine, UNC Chapel Hill

CURRENT POSITION

Founder and CEO, Copperline Professional Solutions, LLC | 2010–present

Leading a biomedical data science and communications consulting firm focused on building open, community-driven, AI and data infrastructure to accelerate the translation of clinical and biomedical knowledge into scalable, interoperable, and mission-oriented solutions

- Advising academic, industry, nonprofit, and government collaborators on data integration, interoperability, governance, and sustainable, open, biomedical data ecosystems

¹ Formal continuing education only

- Cultivating cross-sector scientific and technical communities spanning dozens of institutions and hundreds of contributors engaged in collaborative open-science initiatives
- Developing community-oriented use cases, contributor engagement strategies, and outreach programs to expand adoption of open biomedical knowledge graph systems
- Driving community engagement efforts through publications, workshops, presentations, collaborative communications, and interactive engagement models such as hackathons and live demonstrations
- Facilitating collaboration among researchers, developers, data scientists, and domain experts and securing funding in support of distributed, open-source, biomedical data ecosystems

Clients include:

UNC Chapel Hill ~ Columbia University ~ Vanderbilt University ~ Insilica ~ Synchrony Medical Communications ~ Synchrony Healthcare Communications ~ TARGET PharmaSolutions ~ Axial Exchange ~ AutismSphere ~ Dignify Therapeutics ~ Hearing Solutions Center ~ Henry Ford Health System ~ QBMI PhotoMedicine ~ Multi Radiance Medical ~ Lab Corps ~ Xelay Accumen

CONCURRENT POSITION

Research Affiliate, Renaissance Computing Institute (RENCI), UNC Chapel Hill | 2012–present

- Contributing to several large-scale, open-source, software technology projects focused primarily on open clinical and biomedical data and knowledge ecosystems
- Advancing standards-based data integration and AI-ready infrastructure
- Developing proposals from concept papers to grant applications, leading to >\$22M in funding from the National Institutes of Health and the National Science Foundation, 2016–2025

PRIOR POSITIONS

Assistant Professor and Director of Medical Student & Resident Research, Department of Anesthesiology, School of Medicine, UNC Chapel Hill | 2004–2010

- Integrated and analyzed cross-hospital (and federal), large-scale, perioperative data sets and data systems to develop and direct a data-driven and team-oriented research program on patient safety and healthcare quality assurance / quality improvement; prepared peer-reviewed journal articles and internal hospital reports designed to guide improvements in clinical practice and patient safety
- Developed and directed the Anesthesiology Medical Student and Resident Research Program — a highly successful medical research training program that contributed to multiple awards at the Gulf Atlantic Anesthesia Residents' Research Conference and the John B. Graham Medical Student Research Day, as well as funded internships through the Carolina Medical Student Research Program and the NIH Minority Research Training Program, as well as numerous peer-reviewed journal articles and conference papers/presentations
- Served as faculty mentor / advisor / lecturer for graduate students, medical students, and resident physicians in the UNC School of Medicine's Department of Anesthesiology, the UNC School of Medicine's Research Apprenticeship Program, the UNC School of Medicine's Curriculum in Neurobiology, and the UNC Gillings School of Global Public Health's MD-MPH Leadership Program

Assistant Professor and Fellow, Center for Neurosensory Disorders, School of Dentistry, UNC Chapel Hill | 2002–2003

- Developed and directed basic science projects and contributed to clinical studies on pain genetics and opioid-induced hyperalgesia
- Supervised and trained graduate students and research assistants on research methodology, including study design, data management, and statistical analysis

Assistant Professor, Department of Psychology and Neuroscience, UNC Chapel Hill | 1998–2002

- Developed and directed basic science projects on opioid analgesics and acute inflammation
- Developed and taught undergraduate courses on "Drugs & Human Behavior", "Introduction to Biopsychology", "Independent Research in Psychology", and "Special Topics in Biology"

COMMITTEES, PROFESSIONAL SOCIETIES, AND OTHER PROFESSIONAL EXPERIENCE²

- 2026: Associate Editor, *Frontiers in Systems Biology*, section on Data and Model Integration
- 2026: Editorial Board Member, *Discover Artificial Intelligence*
- 2025: Keynote speaker, “ISMB/ECCB 2025 NIH-ELIXIR session, “Building sustainable solutions for federally-funded open-source biomedical tools and technologies”, July 23, 2025
- 2025–present: Lead, Biomedical Data Translator (“Translator”) Ambassadors and Champions Program, NCATS
- 2025–present: Lead, Translator Relationships and Outreach for Visible Engagement and Resources (ROVER) Working Group, NCATS
- 2025–present: co-Chair, Translator Publications Committee, NCATS
- 2025–present: Member, Translator Planning Committee, NCATS
- 2025: Invited presentation, “Calling All Data Scientists Introducing ROBOKOP”, National Consortium for Data Science, DataBytes webinar, December 10, 2025; <https://renci.org/event/databytes-dec-2025/>
- 2023–2025: Member, Planning Committee, NC Clinical and Environmental Health Data Workshop Series
- 2023–2025: Member, Exposomics Consortium, NIEHS
- 2023–2024: Member, Translator Large Language Models Working Group
- 2022–present: Guest Lecturer, UNC Eshelman School of Pharmacy, Data Science in Pharmacy graduate Course (Pharmaceutical Sciences 517)
- 2022: Invited Speaker, 11th Annual Meeting of the ASCCT, Shifting the Paradigm to Next-Generation (Quantitative) Risk Assessment, Session on Human Data and WoE Toxicology, “Leveraging Electronic health record data for environmental health research and WoE toxicology”, October 20, 2022
- 2022–present: Member, Environmental Health Language Collaborative (EHLC), NIEHS
- 2022–present: Member, EHLC Exposure Events, Biological Processes & Adverse Outcomes Working Group
- 2022–present: Member, EHLC Data Harmonization Working Group
- 2022: Invited Speaker, EHLC, “Biolink Model: an open-source standardized data model for semantic harmonization, integration, and interoperability across datasets”, October 7, 2022
- 2022: Invited Speaker, EHLC, “ICEES: Integrated Clinical and Environmental Exposures Service”, March 15, 2022
- 2022–2023: Member, Environmental Health Domain Science Working Group, National COVID Cohort Collaborative
- 2022–2023: Moderator and Lead, Translator Question-of-the-Month Challenge Initiative, NCATS
- 2022–2024: Member, Translator Ordering & Organizing Working Group, NCATS
- 2022–2024: Member, Translator Agenda Coordination Team, NCATS
- 2022–2024: Member, Translator Sustainability Committee, NCATS
- 2020–2024: Chair, Translator Clinical Data Committee, NCATS
- 2020–present: Member, Translator Publications Committee, NCATS
- 2021–2023: Contributing Writer, *Translator Gazette* (monthly issues)
- 2021: Invited Speaker, UNC Program for Precision Medicine in Health Care, “Leveraging integrated clinical and environmental exposures data to democratize and accelerate open translational research”, June 30, 2021
- 2021: Panelist, National Academy of Sciences Workshop, Leveraging Advances in Remote Geospatial Technologies to Inform Precision Environmental Health Decisions, April 14–15, 2021
- 2020–present: Member, American Medical Informatics Association
- 2020–2024: Member, Translator Data Modeling Committee, NCATS
- 2020–2024: Member, Translator Architecture Committee, NCATS
- 2020–2021: Chair, Translator Publications Committee, NCATS
- 2018–2020: Moderator, Translator Clinical Data Working Group, NCATS

² Select examples provided

- 2019: Invited Speaker (with Stanley C. Ahalt), Joint CDC – NCATS Conference, “Coupling Patient Data and Environmental Data: An Open Science Framework for Accelerating Translational Research”, November 1, 2019
- 2019–2019: Member, Translator Publications, Outreach and Communications Committee, NCATS
- 2018–2019: Acting Chair, Translator Publications Committee, NCATS
- 2018–present: Session Moderator, NCATS Biomedical Data Translator Consortium Winter, Spring, & Fall meetings
- 2018–present: Member, NCATS Biomedical Data Translator Consortium
- 2010–present: Member, American Medical Writers Association
- 2007–2010: Director, Medical Student and Resident Research, Anesthesiology, UNC Chapel Hill
- 2007–2010: Member, Patient Safety & Performance Improvement Committee, Anesthesiology, UNC Chapel Hill
- 2007–2010: Member, GE Centricity Perioperative Anesthesia Committee, Anesthesiology, UNC Chapel Hill
- 2006–2010: Member, American Society of Anesthesiologists
- 2006–2010: Member, International Anesthesia Research Society
- 2005–2010: Associate Faculty Member, Curriculum in Neurobiology, UNC Chapel Hill
- 2004–2010: Member, Chancellor’s Child Care Advisory Committee, UNC Chapel Hill
- 2004–2010: Member, American Pain Society
- 1995–2010: Member, Association for Women Faculty and Professionals
- 1993–2010: Member, PsychoNeuroImmunology Research Society
- 1991–2010: Member, Society for Neuroscience

AWARDS AND HONORS

- 2024–2025: Consultant and Senior/Key Personnel, US PHS Other Transaction Award (OT2TR005712), “DOGSLED: Data, Ontologies, and Graphs Supporting Learning and Enhanced Discovery”, \$2,685,210 (C. Bizon, M. Brush, C. J. Mungall, PIs) [*program expected to continue through year 2029*]
- 2023–2026: Consultant, National Science Foundation Award (2333728), “Proto-OKN Theme 1: BioBricks-OKG An Open Knowledge Graph For Cheminformatics And Chemical Safety”, \$1,454,200 (T. Luechtefeld, PI)
- 2022–2027: Consultant and Senior/Key Personnel, US PHS Cooperative Agreement (U24ES035214), “Supporting Biomedical Discovery with the ROBOKOP Graph Knowledgebase”, \$2,394,033 (A. Tropsha, C. Bizon, PIs)
- 2020–2024: Consultant and Senior/Key Personnel, US PHS Other Transaction Award (OT2TR003430), “ICEES+ Knowledge Provider: Leveraging Open Clinical and Environmental Data to Accelerate and Drive Innovation in Translational Research and Clinical Care”, \$4,368,294 (S. C. Ahalt, A. Krishnamurthy, PIs)
- 2020–2024: Consultant and Other Personnel, US PHS Other Transaction Award (OT2TR003449), “A Common Dialect for Infrastructure and Services in Translator”, \$5,592,124 (M. Haendel, C. J. Mungall, C. Bizon, PIs)
- 2020–2022: Consultant and Senior/Key Personnel, US PHS Research Grant (UL1TR002489-03S4), administrative supplement, “ICEES+ COVID-19 Open Infrastructure to Democratize and Accelerate Cross Institutional Clinical Data Sharing and Research”, \$412,692 (A. Krishnamurthy, PI)
- 2018–2020: Consultant and Senior/Key Personnel, US PHS Other Transaction Award (OT2TR002514), “Biomedical Data Translator Technical Feasibility Assessment of Reasoning Tool: ROBOKOP (Reasoning Over Biomedical Objects linked in Knowledge Oriented Pathways)”, \$2,042,674 (A. Tropsha, C. Bizon, PIs)
- 2017–2018: Consultant, US PHS Other Transaction Award (OT3OD025464), “A Collaboration for the NIH Data Commons”, \$2,001,523 (S. C. Ahalt, PI)
- 2016–2020: Consultant and Senior/Key Personnel, US PHS Other Transaction Award (OT3TR002020), “Carolina Biomedical Data Translator”, \$3,099,918 (S. C. Ahalt, PI)

- 2009–2010: PI, US PHS Research Grant (UL1RR025747), administrative supplement, “Invitational Rhetoric as a Tool to Improve Communication between Anesthesiologists and Surgeons”, \$75,000 (M. S. Runge, PI)
- 2008: Advisor, First Place for Clinical Sciences, John B. Graham Medical Student Research Day
- 2007: Advisor, Carolina Medical Student Research Award
- 2005: Advisor, Carolina Medical Student Research Award
- 2005: Advisor, NIH Minority Trainee Research Forum Award
- 2004: Fellow, Clinical Research Scholars Award, UNC School of Medicine (5M01RR000046-44), \$1,237,762
- 2002–2004: PI, University Research Council Award, UNC Chapel Hill, “Effects of Morphine on the Inflammatory Response: Sex Differences”, ~\$5,000
- 2000–2003: Co-Investigator, US PHS Research Grant (R01DA07481), “Determinants of Opioid/Immune Interactions”, \$637,137 (D. T. Lysle, PI)
- 2000–2003: Co-Investigator, US PHS Research Grant (R01DA13371), “Behavioral Factors in Heroin’s Effect on Nitric Oxide”, \$539,593 (D. T. Lysle, PI)
- 1998–2000: PI, University Research Council Award, UNC Chapel Hill, “Health Consequences of Heroin Administration”, \$2,400
- 1998: PI, Young Investigator Award, N.C. Governor’s Institute on Alcohol and Substance Abuse, “Impact of Morphine Administration on Leukocyte Trafficking: Implications for Health and Disease”, \$6,000
- 1993–1995: PI, Individual National Research Service Award (F31DA05594), “Neural-Endocrine Mechanisms of Opioid-Immune Interactions”, \$35,400
- 1990 BA, Psychology/Mathematics, *summa cum laude*
- 1989 Phi Beta Kappa
- 1988 Psi Chi National Honor Society

PUBLICATIONS AND PRODUCTS³

- Author on >170 scholarly publications and products, including >65 peer-reviewed journal articles (first/lead or last/senior author on majority of articles), >20 white papers and technical reports, >50 peer-reviewed conference papers and proceedings, and numerous book chapters, requested articles, and consortial publications
- Technical Writer / Medical Writer on >100 scholarly publications and products for the pharmaceutical and biotechnology sectors, including peer-reviewed journal articles, systematic reviews, regulatory documents, conference proceedings, slide decks, promotional products, and professional training materials
- Software Architect / Contributor on >10 open-source biomedical data and software technologies

TEACHING EXPERIENCE

Medical Student and Resident Physician Teaching, UNC School of Medicine | 2004–2010

- UNC School of Medicine Research Apprenticeship Program, Advisor (2 semesters)
- Carolina Medical Student Research Fellowship Program, Advisor (2 semesters)
- Anesthesiology 403 Research Elective, Advisor and Lecturer (6 years, Director 3 ½ years)
- Anesthesiology Resident Physician Seminar Series (6 years)

Graduate Student Teaching, UNC School of Medicine and UNC Gillings School of Global Public Health | 2005–2010

- Neurobiology 111, Laboratory Apprenticeship, Advisor and Lecturer (1 semester)
- Neurobiology 394 Doctoral Dissertation, Advisor and Lecturer (4 semesters)
- NIH Minority Trainee Research Forum, Advisor (1 semester)
- UNC Gillings School of Global Public Health MD-MPH Leadership Program, Advisor (5 semesters)

³ Please see <http://www.copperlineprofessionalsolutions.com> for complete list of publications and products

Undergraduate Teaching, UNC Chapel Hill | 1994–2002

- Psychology 070, Drugs and Human Behavior, Instructor (6 semesters)
- Psychology 023, Biopsychology, Instructor (4 semesters)
- Psychology 098, Independent Research in Psychology, Instructor (1 semester)
- Biology 175, Special Topics in Biology, Guest Lecturer (1 semester)

MENTORING EXPERIENCE⁴

- [current] Terence Egbelo, PhD, Data Science, University of Sheffield, England
- [current] Virginia Hensch, PhD, Director, Open BioData Systems, LLC
- [current] Julie Horvath, PhD, Senior Research Scientist, Renaissance Computing Institute, University of North Carolina at Chapel Hill
- [current] Julia McAfee, PhD candidate, Department of Chemistry, University of Virginia
- [former/current] Meghamala Sinha, graduate student, Oregon State University (Stephen Ramsey, primary advisor; Hao Xu, co-advisor); currently Staff Scientist at Scripps Research
- [former] Sepid Mazrouee, PhD, Scientific Researcher, Data And Technology Advancement (DATA) Scholar, National Institute of Allergy and Infectious Diseases (NIAID)
- [former] Brenna Hanson, undergraduate student, Department of Statistics, North Carolina State University; currently a graduate student in Biostatistics, Gillings School of Global Public Health, University of North Carolina at Chapel Hill
- [former] Griffin Roupe, undergraduate student, Department of Computer Science, University of North Carolina at Chapel Hill (Isma Gilani, co-advisor)
- [former] Juan Garcia, graduate student, Department of Computer Science, University of North Carolina at Chapel Hill (Ashok Krishnamurthy, co-advisor)
- [former] Lauren Chan, graduate student, Oregon State University (Melissa Haendel, co-advisor); currently a postdoctoral fellow in Bioinformatics at the University of Chicago
- [former] Priya Sharma, postdoctoral fellow, RENCi (Chris Bizon, co-advisor); currently a postdoctoral fellow with the UNC Obesity Biology, Behavior, and Environment Group
- [former] Bo Lan, research associate, UNC Highway Safety Research Center (Raghavan Srinivasan, primary advisor; Hao Xu, co-advisor)
- [former] Patrick Schmitt, undergraduate student, UNC Chapel Hill and intern at RENCi (Stanley Ahalt and Hao Xu, co advisors); currently Junior Software Engineer at Courthouse Computer Systems
- [former] Rose Wang, high school student, North Carolina School of Science and Math (Ashok Krishnamurthy, co-advisor); currently co-Director at Hack4Impact
- [former] Tasha Wilhelmsen, former undergraduate student at Champlain College; currently Managing Editor & System Support Expert at J&J Editorial
- [former] Sylvia H. Wilson, MD, former UNC Chapel Hill anesthesiology resident physician; currently Endowed Chair, Jerry Reves for Anesthesia Research at the Medical University of South Carolina
- [former] Stephanie Vanterpool, MD, former UNC Chapel Hill anesthesiology resident physician; currently Assistant Professor at The University of Tennessee Graduate School of Medicine
- [former] Heidi Schroeck, MD, former UNC Chapel Hill anesthesiology resident physician; currently Assistant Professor at the Dartmouth-Hitchcock Medical Center
- [former] Bridget Marroquin, MD, former UNC Chapel Hill anesthesiology resident physician; currently Associate Professor at The University of Vermont Medical Center
- [former] Amy Judge, MD, former UNC Chapel Hill anesthesiology resident physician; currently Senior Instructor and Anesthesiologist at Children's Hospital Colorado, School of Medicine, University of Colorado Anschutz

⁴ Select examples provided

VOLUNTEER EXPERIENCE

Current | 2011–present

Founder and Mentor, Copperline Advancement Internship Program for Female Junior Professionals; Wikipedia Editor; Board of Directors Member, The People and The Pen (a 501(c)(3) student-led non-profit supporting civic advocacy and unbiased journalism) (2023–present)

Previous | pre-2011⁵

Pollander Homeowners Association, Member and Secretary (two terms, 2019–2024); Hawbridge School Board of Directors, Member and Secretary (two terms, 2014–2019); Hawbridge School Volunteer and Parent Administrator Student Teacher Association (PASTA) Member, Strategic Planning Committee Member, and Annual Silent Auction Volunteer (2013–2024); AMWA Conference Reporter; Weaver Street Market’s Cooperative Community Fund, Grant Reviewer; McDougale Middle School, Teacher Appreciation Week Committee Chair; Frank Porter Graham Elementary School, Discovery Days Volunteer, Yearbook Committee Member, and Public Relations Representative; Community Independent School Volunteer; Odyssey of the Mind Coach; Girl Scouts of the USA Troop Co-Leader; Rainbow Soccer Assistant Coach; Carrboro Day Volunteer; United States Voter Registration Volunteer

⁵ Select examples provided