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HAOQIAN CHEN, PHD

253 Cleveland Avenue, Highland Park, NJ 08904 ▪ haoqian.chen@gmail.com
(646) 941-3695 ▪ https://www.linkedin.com/in/haoqianchen/

Professional Summary

Seeking to leverage expertise in bioengineering and pharmacoepidemiology for innovative healthcare research initiatives. Driven and accomplished research professional with a foundation in biomedical engineering and extensive experience in managing complex research projects and securing funding. Proven track record of leadership, grant acquisition, and successful project execution in academic and industry settings.

Work Experiences

Rutgers, The State University of New Jersey **New Brunswick, NJ**
Center for Center for Pharmacoepidemiology and Treatment Science (PETS) within
Institute for Health, Health Care Policy and Aging Research (IFH)
Director of Sponsored Research *May 2023 – Present*

- Supervised operations for more than 40 projects (totaling $16M), including 6 international projects
- Managed a team of analysts and research assistants to achieve study objectives for principal investigators
- Ensured timely completion of tasks in compliance with IRB, grant, and industry contract requirements
- Led the effort for CMS-Epic data linkage by working with multiple internal and external stakeholders

Associate Director of Research and Operations *Oct 2020 – May 2023*

- Led the acquisition of $2M CMS Medicare/Medicaid data as the primary contact to CMS and coordinator with internal stakeholders to ensure compliance with CMS requirements
- Provided guidance to university-level IT and ensured successful migration of center-level data to new environment
- Supervised the submission of more than 10 grant applications and contracts, including center grants

Associate Research Program Manager *Jul 2017 – Oct 2020*

- Supervised and coordinated the submission of more than 30 grant applications and contracts for 6 pharmacoepidemiology faculty members to NIH, foundations, and industry, generating $15M in funding
- Managed 2 projects with research site in Japan; presented the study results at International Conference on Pharmacoepidemiology (ICPE); and taught in pre-conference educational session on methods used

Insight Strategy Advisors **New York, NY**
Senior Analyst *Sep 2015-Feb 2016*

- Conducted primary and secondary market research to support client projects
- Produced meeting minutes, weekly status updates, project deliverable presentations

Columbia Business School **New York, NY**
National Institute of Allergy and Infectious Diseases (NIAID)
Innovation and Entrepreneurship fellow *Dec 2014-May 2015*

- Created pitch decks for an organ-on-a-chip startup, where heart tissues are cultured for drug development
- Presented pitch decks to investors at Morgan Stanley and at the final Investor Pitch night

Immunovent, LLC **New York, NY**
Harlem Biospace Associate *Jun 2014-Aug 2014*

- Researched the market and competitive landscape for a biotechnology start-up; drafted an investor pitch deck
- Formulated new directions in R&D for an allergy diagnostic product based on my expertise in immunology

Research Experiences

Columbia University **New York, NY**
Biomedical Engineering Department
Research fellow *Sep 2010 – May 2016*

Developed a novel biosensor to detect crucial proteins in the activation of T-cells to combat cancer

- Collaborated with clinicians and scientists from 6 universities and research institutions around the world as part of the NIH Nanomedicine Development Center for Mechanobiology

- Devised surface capture of native ligands to address microcontact printing abrogation of functions
- Incorporated photolabile ligands for temporal control of T-lymphocyte activation
- Gave an oral presentation at the Gordon Research Conference

National Institute of Health (NIH) **Bethesda, MD**
National Institute of Allergy and Infectious Diseases (NIAID)
Postbaccalaureate Intramural Research Training Award fellow *Jun 2009 – Apr 2010*

Provided laboratory support to study WHIM (Warts, Hypogammaglobulinemia, Immunodeficiency, and Myelokathexis) Syndrome

- Developed evaluation tools to measure patients' responsiveness to experimental treatment
- Obtained industry cooperation to provide free doses of a medication for experimental treatment of clinical patients

National Heart, Lung, and Blood Institute (NHLBI)
Postbaccalaureate Intramural Research Training Award fellow *Sep 2008 – May 2009*

Examined the effect of Bmi1 knockout upon murine cellular energy/redox homeostasis AND cellular senescence/aging, in an effort to address the role of reactive oxygen species in mammalian aging

- Attempted to rescue the Bmi1 knockout phenotype by blocking key pathways in DNA damage response: Chk2
- Mitigated the effect of Bmi1 knockout phenotype by a double knockout of downstream Ink4a locus tumor suppressors and cell cycle regulators: p16 and p19

Princeton University **Princeton University**
Grand Challenge Fellow – Health Challenge @ Abeokuta, Nigeria
Survey leader *Jul 2008 – Aug 2008*

Tackled global health problems by establishing a ceramic water filter factory in Nigeria for potable water

- Helped select a pilot village to distribute locally-made ceramic water filters; communicated with village elders to obtain endorsement for the project
- Led market survey and health impact team by directing 4 Yoruba translators to administer the consumer survey to 52 households, in an effort to identify factors in water filter uptake

Chemical Engineering Department
Senior dissertation *Sep 2007 – Jun 2008*

Synthesized L3-phase silica thin films for sustained drug delivery

- Studied physical principles guiding surface morphology defects
- Investigated factors controlling crack formation and propagation

Chemistry Department
Summer Undergraduate Research Fellowship (SURF) fellow *Jun 2005 – May 2006*

Aided in exploring the best extraction technique to remove metabolites from model organisms

- Performed extensive literature searches for existing extraction solvents and methods
- Studied effects of the environmental stresses on the amount of metabolite being produced by cells

Columbia University and City College of New York **New York, NY**
Materials Research Center
Research Experience for Undergraduates (REU) fellow *Jun 2007 – Aug 2007*

Improved understanding of zirconium tetra-tertiary-butoxide (ZTB) surface chemistry in relation to the atomic layer deposition (ALD) of zirconium oxide, a high-κ dielectric

- Compared chemical vapor deposition with atomic layer deposition for zirconium oxide synthesis
- Performed Leading Edge Analysis on the Thermal Desorption Mass Spectrum to study activation energy

Westinghouse Electric Company **Pittsburgh, PA**
Science and Technology Department
Summer intern *Jun 2004 – Aug 2004*

Computed the theoretical behavior of various energetic particles in silicon carbide detectors

- Computed particle transport calculations using TRIM, a Monte Carlo simulation
- Calculated particle energies based on based on nuclear reaction kinematics

Other Experiences

Columbia University **New York, NY**
Women in Science @ Columbia (WISC)
Network Chair *2015-2016*

- Managed budgets, contacted alumni for networking receptions, reserved venues, designed and disseminated campus advertisements, processed external vendors, and arranged catering or purchased food for events
- Worked with Columbia Center for Career Education to develop a workshop on career fair fundamentals for +20 students
- Coordinated a professional headshot service in preparation for the career fair for +70 students
- Originated a panel discussion and a networking reception with 6 women entrepreneurs about startups for +40 students

Biomedical Engineering Department
Research Assistant *2011-2012*

- Developed curriculum in an 80-student biomedical engineering course with undergraduate and graduate students
- Coordinated 12 weekly office hours and 2 pre-exam review sessions to explain critical ideas and concepts

Education

Columbia University **New York, NY**
Doctor of Philosophy in Biomedical Engineering *May 2016*
Master of Science in Biomedical Engineering *Feb 2012*

- NSF Graduate Research Fellowship ($130K fellowship awarded to top 10% of 20,000 applicants nationally)
- NSF IGERT Fellowship ($80K fellowship awarded to 2 out of 19 Ph.D. candidates in Biomedical Engineering)
- Activities: Teaching assistant for upper-level courses for 2 semesters; Columbia Graduate Consulting Club; Graduate Society of Women Engineers (outreach chair); Women in Science at Columbia (network chair)

Princeton University **New York, NY**
Bachelor of Science in Engineering in Chemical Engineering *Jun 2008*
Minors: Materials Science and Engineering; Engineering Biology

- NSF Research Experience for Undergraduates ($5K fellowship awarded to top 7% of 15,000 applicants nationally)
- Member of Sigma Xi (national invitation-only scientific research society)

Memberships & Affiliations

- New Jersey Big Data Alliance (NJBDA) – Member (2020-Present)
- International Society for Pharmacoepidemiology (ISPE) – Member (2020-Present)
- New York Academy of Sciences (NYAS) – member (2014-2018)
- Biomedical Engineering Society (BMES) – member (2011-2012)
- American Institute of Chemical Engineers (AIChE) – member (2006-2008)

Research Publications

1. Esther CR Jr, Rua M, **Chen H**, Cromwell E, Setoguchi S. Process and validity of linking cystic fibrosis patient registry with national Medicaid databases. *J Cyst Fibros*. 2025 Jan;24(1):118-124. PMID: 39567301.
2. Sugiyama N, Kinjo M, Jinno S, de Luise C, Morishima T, Higuchi T, Katayama K, **Chen H**, Nonnenmacher E, Hase R, Suzuki D, Tanaka Y, Setoguchi S. Validation of claims-based algorithms for rheumatoid arthritis in Japan: Results from the VALIDATE-J study. *Int J Rheum Dis.* 2024 Jan;27(1):e15001. PMID: 38160436.
3. Tsai DH, Bell JS, Abtahi S, Baak BN, Bazelier MT, Brauer R, Chan AYL, Chan EW, **Chen H,** Chui CSL, Cook S, Crystal S, Gandhi P, Hartikainen S, Ho FK, Hsu ST, Ilomäki J, Kim JH, Klungel OH, Koponen M, Lau WCY, Lau KK, Lum TYS, Luo H, Man KKC, Pell JP, Setoguchi S, Shao SC, Shen CY, Shin JY, Souverein PC, Tolppanen AM, Wei L, Wong ICK, Lai EC. Cross-Regional Data Initiative for the Assessment and Development of Treatment for Neurological and Mental Disorders. *Clin Epidemiol.* 2023 Dec 21;15:1241-1252. PMID: 38146486; PMCID: PMC10749544.
4. Hase R, Suzuki D, de Luise C, **Chen H**, Nonnenmacher E, Higuchi T, Katayama K, Kinjo M, Jinno S, Morishima T, Sugiyama N, Tanaka Y, Setoguchi S. Validity of claims-based diagnoses for infectious diseases common among

immunocompromised patients in Japan. *BMC Infect Dis.* 2023 Oct 3;23(1):653. PMID: 37789253; PMCID: PMC10548573.

5. Ogino H, Morikubo H, Fukaura K, Okui T, Gardiner S, Sugiyama N, Yoshii N, Kawaguchi T, **Chen H**, Nonnenmacher E, Setoguchi S, Nakashima N, Kobayashi T. Validation of a claims-based algorithm to identify cases of ulcerative colitis in Japan. *J Gastroenterol Hepatol.* 2022 Mar;37(3):499-506. PMID: 34738649; PMCID: PMC9298722.
6. de Luise C, Sugiyama N, Morishima T, Higuchi T, Katayama K, Nakamura S, **Chen H**, Nonnenmacher E, Hase R, Jinno S, Kinjo M, Suzuki D, Tanaka Y, Setoguchi S. Validity of claims-based algorithms for selected cancers in Japan: Results from the VALIDATE-J study. *Pharmacoepidemiol Drug Saf*. 2021 Sep;30(9):1153-1161. PMID: 33960542; PMCID: PMC8453514.
7. Nunez EH, Parhar S, Iwata I, Setoguchi S, **Chen H**, Daneault JF. Comparing different methods of gait speed estimation using wearable sensors in individuals with varying levels of mobility impairments. *Annu Int Conf IEEE Eng Med Biol Soc. 2020.* Jul;2020:3792-3798. PMID: 33018827.
8. Bashour KT, Gondarenko A, **Chen H**, Shen K, Liu X, Huse M, Hone JC, Kam LC. CD28 and CD3 have complementary roles in T-cell traction forces. *Proc Natl Acad Sci*. 2014 Feb 11;111(6):2241-6. PMID: 24469820; PMCID: PMC3926067.
9. Liu Q, **Chen H**, Ojode T, Gao X, Anaya-O'Brien S, Turner NA, Ulrick J, DeCastro R, Kelly C, Cardones AR, Gold SH, Hwang EI, Wechsler DS, Malech HL, Murphy PM, McDermott DH. WHIM syndrome caused by a single amino acid substitution in the carboxy-tail of chemokine receptor CXCR4. *Blood*. 2012 Jul 5;120(1):181-9. PMID: 22596258; PMCID: PMC3390956.
10. McDermott DH, Lopez J, Deng F, Liu Q, Ojode T, Chen H, Ulrick J, Kwatemaa N, Kelly C, Anaya-O'Brien S, Garofalo M, Marquesen M, Hilligoss D, DeCastro R, Malech HL, Murphy PM. AMD3100 is a potent antagonist at CXCR4(R334X) , a hyperfunctional mutant chemokine receptor and cause of WHIM syndrome. *J Cell Mol Med*. 2011 Oct;15(10):2071-81. PMID: 21070597; PMCID: PMC3071896.
11. Plappally A, **Chen H**, Ayinde W, Alayande S, Usoro A, Friedman KC, Dare E, Ogunyale T, Yakub I , Leftwich M, Malatesta K, Rivera R, Brown L, Soboyejo A, Soboyejo W. A Field Study on the Use of Clay Ceramic Water Filters and Influences on the General Health in Nigeria. *J Health Behav & Pub Health.* 2011, 1(1): 1-14.
12. Liu J, Cao L, Chen J, Song S, Lee IH, Quijano C, Liu H, Keyvanfar K, **Chen H**, Cao LY, Ahn BH, Kumar NG, Rovira II, Xu XL, van Lohuizen M, Motoyama N, Deng CX, Finkel T. Bmi1 regulates mitochondrial function and the DNA damage response pathway. *Nature*. 2009 May 21;459(7245):387-392. PMID: 19404261; PMCID: PMC4721521.
13. Ruddy FH, Seidel JG, **Chen H**, Dulloo AR, Ryu SH. High-Resolution Alpha-Particle Spectrometry Using 4H Silicon Carbide Semiconductor Detectors. *IEEE Transactions on Nuclear Science.* 2006, 53(3): 1713-1718.

Contributions to Research Publications

1. Kimball E, Rabinowitz JD. Identifying decomposition products in extracts of cellular metabolites. *Anal Biochem.* 2006 Nov 15;358(2):273-80. PMID: 16962982; PMCID: PMC1868396.
2. Bajad SU, Lu W, Kimball EH, Yuan J, Peterson C, Rabinowitz JD. Separation and quantitation of water soluble cellular metabolites by hydrophilic interaction chromatography-tandem mass spectrometry. *J Chromatogr A*. 2006 Aug 25;1125(1):76-88. PMID: 16759663.

Abstracts (Last 3 Years)

1. Rege S, Xu C, Ritchey ME, **Chen H**, Huang C, Bushnell G, Dave C, Setoguchi S, Tan Z, Strom BL, Gerhard T. (Scheduled for August 2025). Comparative risk of hip fracture associated with initiation of Z-drugs among patients with and without osteoporosis. Poster to be presented at the 2025 International Conference on Pharmacoepidemiology & Therapeutic Risk Management, Washington, DC. [Abstract 2055871].
2. Ritchey ME, Xu C, Rege S, **Chen H**, Huang C, Tan Z, Strom BL, Gerhard T. (Scheduled for August 2025). Risk of upper gastrointestinal (GI) bleeding associated with initiation of oral systemic corticosteroids among patients with and without any pre-existing GI bleed. Poster to be presented at the 2025 International Conference on Pharmacoepidemiology & Therapeutic Risk Management, Washington, DC. [Abstract 2051487].
3. Ritchey ME, Xu C, Rege S, **Chen H**, Khalil S, Huang C, Dave C, Setoguchi S, Strom BL, Gerhard T. Comparative risk of lactic acidosis associated with initiation of metformin among patients with and without renal impairment. Poster presented at the 2024 International Conference on Pharmacoepidemiology & Therapeutic Risk Management, Berlin, Germany. [Poster 042].

4. Ritchey ME, Xu C, Rege S, **Chen H**, Khalil S, Huang C, Dave C, Setoguchi S, Strom BL, Gerhard T. Comparative risk of lactic acidosis associated with initiation of metformin among patients with and without renal impairment. Poster presented at the 2024 International Conference on Pharmacoepidemiology & Therapeutic Risk Management, Berlin, Germany. [Abstract 818].
5. Mittal G, Varolgunes U, Salas M, Arunachalam M, Parikh K, Ip A, Malhotra J, Bates B, **Chen H**, Chen W, Yu D, Setoguchi S. Predicting HER2 Status in Non-Small Cell Lung Cancer using Machine Learning Approach for Precision Cancer Pharmacoepidemiology in Large Databases. Poster presented at the 2023 International Conference on Pharmacoepidemiology & Therapeutic Risk Management, Halifax, Canada. [Abstract 647].
6. Strom JB, **Chen H**, Kaushik M, Liu B, Troy A, Nyandege A, Setoguchi S, Strom BL, Gerhard T. Validity of an ICD-10 Algorithm for Nonfatal Myocardial Infarction Among U.S. Medicare Older Adults. Poster presented at the 2023 International Conference on Pharmacoepidemiology & Therapeutic Risk Management, Halifax, Canada. [Abstract 1210].
7. **Chen H,** Strom JB, Kaushik M, Liu B, Troy A, Nyandege A, Setoguchi S, Strom BL, Gerhard T. Validity of ICD-10 Algorithms for Ischemic and Hemorrhagic Stroke in U.S. Medicare Older Adults. Poster presented at the 2023 International Conference on Pharmacoepidemiology & Therapeutic Risk Management, Halifax, Canada. [Abstract 1215].
8. Ritchey ME, **Chen H**, Khalil S, Bhagat A, Madu C, Sharma P, Huang C, Setoguchi S, Strom BL, Gerhard T. Validity of a Claims-Based Algorithm to Identify Lactic Acidosis in U.S. Medicare. Poster presented at the 2023 International Conference on Pharmacoepidemiology & Therapeutic Risk Management, Halifax, Canada. [Abstract 1219].
9. **Chen H,** Tamura Y, Tanabe N, Hiasa K, Funakoshi K, Okui T, Nakashima N, Hirano T, Sugiyama N, Rua M, Setoguchi S. Validity of Claims-Based Algorithm to Identify Venous Thromboembolism in Japan. Poster presented at the 2023 International Conference on Pharmacoepidemiology & Therapeutic Risk Management, Halifax, Canada. [Abstract 1220].