

# Duo (Helen) Wei, Ph.D.

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## PERSONAL INFORMATION

Work Address    School of Business  
                      Stockton University  
                      Galloway, NJ 08205

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Email: duo.wei@stockton.edu

## EDUCATION

Ph.D.    2011    Computer Science, New Jersey Institute of Technology, Newark, NJ  
                  Thesis Title: Extensions of SNOMED Taxonomy Abstraction Networks Supporting  
                  Auditing and Complexity Analysis  
                  Thesis Advisors: Dr. Yehoshua Perl and Dr. Michael Halper  
B.S.    2006    Computer Science, Changchun Normal University, Changchun, China

## PROFESSIONAL EXPERIENCE

2016 - present    Associate Professor, School of Business, Stockton University, Galloway, NJ  
2018 – 2019    Visiting Professor, Department of Biomedical Informatics, Columbia University, New  
                      York, NY  
2011 - 2016    Assistant Professor, School of Business, Stockton University, Galloway, NJ  
Summer 2009    Pre-doctoral visiting fellow, National Library of Medicine, National Institutes of Health,  
                      Bethesda, MD  
2006 - 2011    Research Assistant, Structural Analysis of Biomedical Ontologies Center (SABOC), New  
                      Jersey Institute of Technology, Newark, NJ  
Summer 2005    Internship, Chinese Academy of Sciences, Beijing, P. R. China

## TEACHING

### **Course Taught**

#### **Stockton University**

Programming & Problem Solving I & II; Foundations of Computer Science; Data  
Structures; Database; Medical Informatics; Knowledge Discovery and Data Mining,  
Healthcare Informatics (MBA class)

#### **New Jersey Institute of Technology** (Teaching Assistant)

Introduction to Computer Science; Data Structure and Algorithm Design; Java  
Programming Language; Advance Data Structure and Algorithm

### **Undergraduate Student Research Advisor**

2019 – 2020    Mykola Hubchak (employer: Lockheed Martin) “Automatic license plate detection  
                      optimization schema”  
2017 – 2018    David Parra Moreno (employer: Google Inc.) “SNOMED navigation and auditing using  
                      large scale data analysis”  
2016 – 2017    Arron Burrows (employer: FAA) “Tracking students' performance to assess correlations  
                      among computer science programming series courses” co-authored and published on the  
                      Journal of Computing Sciences in Colleges (JCSC) Arron Burrows received IEEE  
                      Student Researcher Award in 2017  
2014 – 2015    Nhi Lam (employer: Vanguard) “Developing traditional Chinese medicine ontology  
                      using SNOMED”  
2013 – 2014    Tiara Campbell (employer: University of Pennsylvania) “Improving Clinical Trial Online  
                      Search Efficiency Using Natural Language Processing and Biomedical Ontology  
                      Mapping Approach” co-authored and published on IEEE International Conference on  
                      Health Informatics (ICHI 2013)

## **Independent Study Projects and Internships Supervised**

- 2023 Riya Goyal e-Sport internship at Stockton University
- 2019 Trevor Kopp Independent study preprocessing PubMed using NLP and developing algorithms to process SNOMED
- 2014 Elizabeth Kang (a female student), Independent study on Scientific Writing and Electronic Health Record System GUI Design
- 2012 John Louderback, mentored together with Professor Hannah Ueno of Art, Independent study on Game Interface Design

## **RESEARCH**

### **Publications**

#### **Peer-reviewed journal papers**

**Wei D**, Prakash S, Goyal R, Zhang R. Does COVID-19 affect mental health and substance use in young adults?. *J Edu Health Promot* [serial online] 2023 [cited 2023 May 7];12:108. Available from: <https://www.jehp.net/text.asp?2023/12/1/108/372833>

**Wei, D.**, Kukhareva PV, Tao D, Sordo M, Pandita D, Dua P, Banerjee I, Abraham J. Assessing perceived effectiveness of career development efforts led by the women in American Medical Informatics Association Initiative. *J Am Med Inform Assoc.* 2022 Aug 16;29(9):1593-1606. doi: 10.1093/jamia/ocac101. PMID: 35773963; PMCID: PMC9382400. (Impact Factor is 7.942)

Zheng, L., He, Z., **Wei, D.**, Keloth, V., Fan, J., Lindemann, L., Zhu, X., Cimino, J., Perl, Y., (2019) A review of auditing techniques for the Unified Medical Language System, *J Am Med Inform Assoc.* 2020 Oct 1;27(10):1625-1638. doi: 10.1093/jamia/ocaa108. PMID: 32766692; PMCID: PMC7566540. (Impact Factor is 7.942)

Gu, H., Chen, Y., He, Z., **Wei, D.**, Elhanan, G., Validating Semantic Type Assignments Using SNOMED CT semantic tags, (2017) *Methods in Medical Informatics*, 2018 Feb;57(1):43-53.

**Wei, D.**, Burrows, A., (2016) Tracking students' performance to assess correlations among computer science programming series courses, *Journal of Computing Sciences in Colleges.* vol. 32, pp. 9-16"

**Wei, D.**, Gu, H., Perl, Y., Halper, M., Ochs, C., (2015) Structural measures to track the evolution of SNOMED CT hierarchies, *Journal of Biomedical Informatics*, 5, 278-287. (**Impact Factor is 2.434**)

**Wei, D.**, Zhang S. (2014) Using Auto-generated materials to facilitate instructors' offline preparation time and improve students' learning outcomes. *Journal of Computing Sciences in Colleges*, 29 (6), 151-152.

Agrawal, A., Elhanan, G., & **Wei, D.** (2013) The readiness of SNOMED problem list concepts for meaningful use of electronic health records. *Artificial Intelligence in Medicine*, 58 (2), 73-80. (**Impact Factor of 1.767**)

**Wei, D.** (2013). An evaluation of a cooperative learning method in programming and problem solving I. *Journal of Computing Sciences in Colleges*, 28 (3), 69-77.

Wang, Y., Halper, M., **Wei, D.**, Perl, Y., & Geller, J. (2012). Abstraction of complex concepts with a refined partial-area taxonomy of SNOMED. *Journal of Biomedical Informatics*, 45 (1), 15-29. (**Impact Factor is 2.434**)

Wang, Y., Halper, M., **Wei, D.**, Gu, H., Perl, Y, Xu, J., Elhanan, G., Chen, Y., Spackman, K.A., Case, J.T., Hripcsak, G.(2012). Auditing complex concepts of SNOMED using a refined

hierarchical abstraction network. *Journal of Biomedical Informatics*, 45 (1), 1-14. (**Impact Factor is 2.434**)

Gu, H., **Wei, D.**, Mejino, J., & Elhanan, G. (2009). Relationship auditing of the FMA ontology. *Journal of Biomedical Informatics*, 42 (3), 550-557. (**Impact Factor is 2.434**)

#### **Peer-reviewed conference papers**

**Wei, D.**, Kiminsky, K., Hamill, P., Nguyen, Q.(2023). Involving Undergraduates into Health Informatics Research via Project-Based Learning Classes – A Case Study, The 11th IEEE International Conference on Healthcare Informatics (ICHI), Houston, Texas, Jun 26th - 29th , 2023.

Fan, J., Rivera, R., Huang, H., Leung, T., Kronk, C., **Wei, D.** (2022), Concepts and Practices of Diversity, Equity, and Inclusion (DEI) in the Scholarly Communication for Biomedical Informatics, American Medical Informatics Association Annual Symposium 2022. Washington DC, Nov., 05 – Nov 09., 2022

Abraham, J., Sordo, M., **Wei, D.**, Kukhareva, P., Pandita, D., Dua, P., Banerjee, I., Tao, D.(2022). Impact of COVID-19 on Career and Family Life for Women in AMIA, American Medical Informatics Association Annual Symposium 2022. Washington DC, Nov., 05 – Nov 09., 2022

**Wei, D.** (2021) Resemblance Distantly Supervised Approach to Extract Triplet Information from Randomized Control Trials of Breast Cancer, American Medical Informatics Association Annual Symposium 2022 . Washington DC, Nov., 05 – Nov 09., 2022

Tao, D., **Wei, D. H.**, Rizvi, R., Paudita, Deepti., & Sordo, M. (2021). Career Development Issues for Women in Biomedical Informatics Within Professional Organization. American Medical Informatics Association Annual Symposium 2021.

Glass, A., Levy, M., Zappile, T., Digiorgio, E., **Wei, D.**, Erbaugh, B., Higher Education Data Sharing Consortium (HEDS) COVID-19 Faculty/Staff Survey Fall 2020 Pandemic Perceptions. (2021) *2020 Higher Education Data Sharing Consortium*.

Tao, D., **Wei, D. H.**, & Sordo, M. (2020). Evidence-based Work-Life Balance Needs and Suggested Solutions from Career LifeCycle, Gender, and Ethnicity, and Managerial Perspectives. American Medical Informatics Association Annual Symposium 2020.

**Wei, D.** , Ta, C., Pincus, H., Weng, C. (2019). Combining Clinical Data and Domain Knowledge for Analyzing Mental Disorder Concept Relatedness and Usage. 1-6. *10.1109/ICHI.2019.8904772*.

**Wei D.**, Kang T, Pincus H, Weng C. Construction of Disease Similarity Networks Using Concept Embedding and Ontology.(2019) *Stud Health Technol Inform*. 2019 Aug 21;264:442-446. doi: 10.3233/SHTI190260. PMID: 31437962; PMCID: PMC6874911.

**Wei, D.**, Fu, G., (2017) Using SNOMED Distance to measure semantic similarity of clinical trials. Submitted to *The 16<sup>th</sup> World Congress on Medical and Health Informatics*.

He, Z., Wei, D., Bian, J., Liu, J., Gong, Y., (2017) Advancing health informatics education and health IT workforce development through interdisciplinary collaboration. Submitted to *The 16<sup>th</sup> World Congress on Medical and Health Informatics*.

**Wei, D.** (2016) Using semantic groupings to support clinical trial medical condition search: a case study on diabetic complications. *American Medical Informatics Association Annual Symposium*, pp 1633; *Chicago, IL*

Zhou, JY., **Wei, D.** (2016) An integration of cooperative learning into undergraduate medical informatics class with service learning components. *American Medical Informatics Association Annual Symposium*, pp 1657; *Chicago, IL*

**Wei, D.,** Yang, S., Zhang, S., Zhao, H., (2015) Evaluation of an auto-generated data structures and algorithms visualization approach at tri-state colleges. *The 2015 International Conference on Collaboration Technologies and Systems (CTS)*, pp.183-189; Atlanta, GA.

**Wei, D.,** Campbell,T. (2014) A similarity measurement of clinical trials using SNOMED - A preliminary study. *The 2014 International Conference on Collaboration Technologies and Systems (CTS)*, pp.457-460; Minneapolis, MN.

**Wei, D.** (2013). An evaluation of a cooperative learning method in programming and problem solving I. *CCSC Eastern (The Consortium for Computing Sciences in College)*, 28 (3), 69-77.

**Wei D,** Halper M, Elhanan G (2012). Using SNOMED semantic concept groupings to enhance semantic-type assignment consistency in the UMLS. *Proceedings of the 2nd ACM SIGHIT International Health Informatics Symposium*; Miami, Florida, USA. 2110465: ACM; 2012. p. 825-30.

**Wei, D.** & Bodenreider, O. (2010). Using the abstraction network in complement to description logics for quality assurance in biomedical terminologies - a case study in SNOMED CT. *13th International Congress on Medical Informatics*, 1070-1074.

**Wei, D.,** Halper, M., Elhanan, G., Chen, Y., Perl, Y., J. Geller, K.A. Spackman, (2009). Auditing SNOMED relationships using a converse abstraction network. *American Medical Informatics Association Annual Symposium*, 685-689.

**Wei, D.,** Wang, Y., Perl, Y., Xu, J., Halper, M., K.A. Spackman, (2008). Complexity measures to track the evolution of a SNOMED hierarchy. *American Medical Informatics Association Annual Symposium*, 778-782.

Wang, Y., **Wei, D.,** Xu, J., Elhanan, G., Perl, Y., M. Halper, Y. Chen, K.A. Spcakman, G.Hripcsak, (2008). Auditing complex concepts in overlapping subsets of SNOMED. *American Medical Informatics Association Annual Symposium*, 273-277.

#### **Presentations of Refereed Papers**

**Wei, D,** Concept Relatedness Analysis by Combining Clinical Data and Domain Knowledge. Accepted to IEEE International Conference in Healthcare Informatics.

Wei, D. (2016) Using semantic groupings to support clinical trial medical condition search: a case study on diabetic complications. Submitted to *American Medical Informatics Association Annual Symposium*.

Wei, D. (2016) An integration of cooperative learning into undergraduate medical informatics class with service learning components. Submitted to American Medical Informatics Association Annual Symposium.

Wei, D., (2015) Using ABET performance indicator to develop assessment instrument for measuring foundational conceptual knowledge in programming classes. *Assessment for learning in higher education*, Hong Kong, China.

Wei, D., (2015) Evaluation of an auto-generated data structures and algorithms visualization approach at tri-state colleges. *The 2015 International Conference on Collaboration Technologies and Systems (CTS)*, Atlanta, GA.

Wei, D. (2014) *A similarity measurement of clinical trials using SNOMED – A preliminary study*, IEEE, ACM, IFIP, Minneapolis, MN.

Wei, D. (2014) *Using auto-generated materials to facilitate instructors' offline preparation time and improve students' learning outcomes*, CCSC North Eastern (The Consortium for Computing Sciences in College), Providence, Rhode Island.

Wei, D. (2014). *Integrating computer science components into undergraduate level medical informatics curriculum*. CCSC North Eastern (The Consortium for Computing Sciences in College), Providence, Rhode Island.

Wei, D. & Campbell, T. (2013, September). *Improving clinical trial online search efficiency using natural language processing and biomedical ontology mapping approach*. 2013 IEEE International Conference on Healthcare Informatics (ICHI), Philadelphia, Pennsylvania.

Wei, D. (2013). *Using cooperative learning method to teach programming and problem solving 1 - A case study*. CCSC Eastern (The Consortium for Computing Sciences in College), Ewing, New Jersey.

Wei, D. (2012). *Designing a college level medical informatics course*. The third international conference on global trends in biomedical informatics research, education and globalization. Newark, NJ, November, 2012.

Wei, D. (2012). *Using SNOMED semantic concept groupings to enhance semantic-type assignment consistency in the UMLS*. 2nd ACM SIGHT International Health Informatics Symposium, Miami, Florida.

Wei, D. (2011). *Application of abstraction network to measure the complexity of biomedical terminologies*. (Stockton University, Faculty Candidate Talk)

Wei, D. (2010). *Using the abstraction network in complement to description logics for quality assurance in biomedical terminologies - a case study in SNOMED CT*. 13<sup>th</sup> International Congress on Medical Informatics, Cape Town, South Africa.

Wei, D. (2009). *Auditing SNOMED relationships using a converse abstraction network*. American Medical Informatics Association Annual Symposium, San Francisco, California.

Wei, D. (2008). *Auditing complex concepts in overlapping subsets of SNOMED*. American Medical Informatics Association Annual Symposium, DC, District of Columbia.

Wei, D. (2008). *Complexity measures to track the evolution of a SNOMED hierarchy*. American Medical Informatics Association Annual Symposium, DC, District of Columbia.

Wei, D. (2009). *Using a converse abstraction network to auditing SNOMED lateral relationships*. New Jersey Institute of Technology Graduate Student Research Day, Newark, New Jersey.

Wei, D. (2009). *Using abstraction network in complement to description logic for quality assurance purposes in SNOMED CT*. National Institutes of Health pre-doctoral visiting fellow report presentation, Bethesda, Maryland.

Wei, D. (2008). *Complexity measures to track the evolution of the Specimen hierarchy in SNOMED CT*. New Jersey Institute of Technology Graduate Student Research Day, Newark, New Jersey.

### **Presentations of Non-Refereed Papers**

Wei, D. (2013). *Structural auditing of SNOMED and complexity analysis*. School of Business Research Seminar Series, Galloway, New Jersey.

Wei, D. (2013). *An Evaluation of a cooperative learning method in programming and problem solving I*. Stockton University Day of Scholarship, Galloway Township, New Jersey.

Wei, D. (2009). *Using a converse abstraction network to auditing SNOMED lateral relationships*. New Jersey Institute of Technology Graduate Student Research Day, Newark, New Jersey.

Wei, D. (2009). *Using abstraction network in complement to description logic for quality assurance purposes in SNOMED CT*. National Institutes of Health pre-doctoral visiting fellow report presentation, Rockville, Maryland.

Wei, D. (2008). *Complexity measures to track the evolution of the Specimen hierarchy in SNOMED CT*. New Jersey Institute of Technology Graduate Student Research Day, Newark, New Jersey.

### Working Papers

Gu H., **Wei D.**, He Z., Chen Y., Elhanan G., "Cross-validation of semantic tags of SNOMED CT and semantic types of the UMLS (working title)." *In preparation*.

**Wei D.**, Halper M., He Z., Chen L., "Auditing UMLS semantic type assignment using SNOMED semantic concepts grouping." *In preparation*.

**Wei D.**, Zhang S., Yang S., Zhao H., "Evaluation of an auto-generated Data Structure and Algorithms (DSA) visualization approach at tri-state colleges." *In preparation*.

### Grants

#### Research

2023: (Core member) Federal Administration for Community Living(ACL) Alzheimer's Disease Program Initiative (HHS-2023-ACL-AOA-ADPI-0035) grant subcontract (\$178,000) to Stockton.

2022: (PI) Stockton Center on Successful Aging (SCOSA) Faculty Fellow.

2021: (PI) Stockton Career Develop Committee Funds.

2020: (PI) Grace Hopper Celebration Faculty Scholar.

2018-2019: (PI) Sabbatical award for a full year 2018 - 2019

2017: (PI) NIH Big Data to Knowledge fellowship from Weil Cornell Medical Center.

2017: (PI) Stockton Center on Successful Aging (SCOSA) grant.

2016: (PI) Stockton R&PD Grant, Stockton University.

2016: (PI) (in revision) Proposed Research "Improving Clinical Trial Online Search Efficiency Using Natural Language Processing and Biomedical Ontology Approaches" submitted to *NIH Academic Research Enhancement Award Program* (Parent R15, Tracking Number GRANT11766999)

2015: (PI) Stockton R&PD Grant, Stockton University.

2014: (PI) Junior Faculty Awards, School of Business, Stockton University.

2013: (PI) Stockton R&PD Grant, Stockton University.

2013: (PI) Junior Faculty Awards, School of Business, Stockton University.

2012: (PI) Junior Faculty Awards, School of Business, Stockton University.

#### Teaching

2016: Wei, CRA-W Travel Grant awards for mid career mentoring workshop (*Amount: \$1,000*)

2014: Wei, ACM Travel Grant Program awards for 2014 (*Amount: \$1,000*)

2013: Wei, D. SUNY IIT Evaluation Participant, State University of New York College at Oneonta.

## **SERVICE**

### **Service to the Institution**

#### **University level**

2019 - now: chair of Faculty Senate Information Technology and Media Services (ITMS) subcommittee  
2016 – 2017: Vice chair of the Research and Professional Development Committee – Faculty Senate Liaison  
2013 – 2017: Faculty advisor of the Stockton Computer Society  
2017-2019: School of Business representative at Advising Council  
2014-2016: At Large member of the Faculty Senate of Stockton University  
2014-2015: member of the Essential Learning Outcomes Study Group  
2014-2015: member of the Working Group for Data Science  
2012-2014: member of the Senate Task Force on University Status

#### **Department level**

2019 – now: Founder and advisor of the Health Analytics Research Team (HEART)  
2019 – now: member of the computer science master program subcommittee and leader of current student and alumni survey for the master program  
2016 – now : member of the computer science program ABET accreditation committee  
2018: Business analytics search committee, tenure-track line  
2014: Health science faculty search consultant, tenure-track line  
2013-2016: CSIS Faculty Search Committee, tenure-track line and 13D line  
2013-2015: Programming and Data Structure Courses Evaluation for ABET accreditation

### **Service to the Profession**

#### **Chair: Conference / Track / Program**

2020 – now: chair of the Women in AMIA Networking, Mentoring, and LifeCycle subcommittee  
2019 – 2020: AMIA podcast liaison to interview professors and principal investigators in the field of biomedical informatics  
2017-2019: co-chair of the Women in American Medical Informatics Association Lifecycle subcommittee  
2016: International Conference on Collaboration Technologies and Systems (CTS 2016), Orlando, Florida.  
2015: International Conference on Collaboration Technologies and Systems (CTS 2015), Atlanta, Georgia.  
2014: International Conference on Collaboration Technologies and Systems (CTS 2014), Minneapolis, Minnesota.  
2014: The 30<sup>th</sup> Consortium for Computing Sciences in Colleges, Eastern Region, York, Pennsylvania

#### **Reviewer: Grant Proposal Related to Expertise**

2017: NSF grant review panel member. Reviewed more than ten NSF grant proposals.  
2014: University of Wisconsin - Milwaukee the ninth round of Research Growth Initiative (RGI), Milwaukee, Wisconsin. This program provides seed funding for new research and creative projects across the university.

2014: The Stimulus for Enhancing Extramural Development (SEED), Milwaukee, Wisconsin. In pursuit of its mission to enrich the health and well-being of people in Wisconsin and the world through innovative research.

Reviewer: Journal Paper

2022 – 2023: Journal of Biomedical Informatics  
2018 – 2023: Journal of Medical Internet Research  
2016-2023: BMC Supplement and BMC Health Informatics  
2018: Transactions on Education. Area of Scholarship: Application TE-2018-000275  
2012, 2009: Knowledge and Information Systems. Reviewer of manuscript KAIS-1969

Reviewer: Conference Paper

2016-2023: American Medical Informatics Association Symposium  
2014-2016: SIGCSE (Special Interest Group in Computer Science Education).  
2012-2016: Consortium for Computing Sciences in Colleges.  
2012, 2014, 2015: MEDINFO

Advisor:

2013: 2013 IEEE International Conference on Healthcare Informatics (ICHI), Philadelphia, Pennsylvania. Mentor a PhD student, Murugavell Pandiyan, from Dubai Health Authority, India, on a research paper "Semantic Interoperability with Decision Support for Infectious Disease" and the poster was presented at the 2013 IEEE International Conference on Healthcare Informatics (ICHI).

Judge:

10/2020: Congressional App Challenge – Evaluating more than ten computer applications develop by NJ high school students. My evaluation results have been recorded by the Congressman Van Drew's office.

**HONORS / AWARDS**

**Award**

2020 Grace Hopper Faculty Scholarship Award  
2009 Runner-up Graduate Student Research, New Jersey Institute of Technology  
2008 First prize of Graduate Student Research, New Jersey Institute of Technology  
2005 First prize of Jilin province, National College Student Mathematical Modeling Contest, P. R. China

**Honor**

2007 Excellent organizer in "Research Day" of the Graduate Student Association (GSA), New Jersey Institute of Technology

**PROFESSIONAL CERTIFICATIONS**

Actuaries Exam P - Probability Passed, 2011  
SAS Advanced Programmer, 2010  
SAS Basic Programmer, 2010