

Curriculum Vitae

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Website: www.michaelvheinz.com
Education: 2013 B.A., (Mathematics) Creighton University, GPA: 4.0
2017 M.D., Creighton University School of Medicine

Residency Training

2017- 2021 Adult Psychiatry Residency (Research Track), Dartmouth Hitchcock Medical Center
2021- Postdoctoral Research Fellowship, Dartmouth College Center for Technology and Behavioral Health

Bibliography

Peer Reviewed Publications

Nemesure, M.D., **Heinz, M.V.**, Huang, R. Jacobson, N.. Predictive modeling of depression and anxiety using electronic health records and a novel machine learning approach with artificial intelligence. *Sci Rep* 11, 1980 (2021). <https://doi.org/10.1038/s41598-021-81368-4>

Jacobson, N.C., Yom-Tom, E., Lekkas, D., **Heinz, M.V.**, Liu, L., Barr, P. Impact of Online Mental Health Screening Tools on Help-Seeking, Care Receipt, and Suicidal Ideation and Suicidal Intent: Evidence from Internet Search Behavior in a Large Cohort. *Journal of Psychiatric Research*, 2020.

Jacobson, N.C., Lekkas, D., Price, G.P., **Heinz, M.V.**, Song, M., O'Malley, J.O. & Barr, P.J. Flattening the Mental Health Curve: COVID-19 Stay-at-Home Orders Result in Alterations in Mental Health Search Behavior in the United States. *JMIR*, 2020.

Meng X*, **Heinz M***, Ganoë CH, Sieberg RT, Cheung YY, Hassanpour S. (2019) Understanding Urgency in Radiology Reporting: Identifying Associations Between Clinical Findings in Radiology Reports and Their Prompt Communication to Referring Physicians. *Stud Health Technol Inform. PubMed PMID: 31438224. *co-first author*

Manuscripts in Review & Preprint

Heinz, M.V., Price, G., Ruan, F., Klein, R., Nemesure, M.D., Lopez, A., Jacobson, N.C. Detecting Use of Antidepressants Using Passively Wearable Movement Data and Deep Learning in a Large Nationally Representative Sample.

Price, G.D., **Heinz, M.V.**, Nemesure, M.D., McFadden, J., Jacobson, N.C. Predicting Schizophrenia Symptom Response and Engagement in a Digital Intervention.

Nemesure, M. D., **Heinz, M. V.**, Klein, R. J., McFadden, J. R. & Jacobson, N. C. Predictive Modeling Approach to Evaluate Individual Response to a Physical Activity Digital Intervention for Subjects with Major Depressive Disorder. (2021). doi:10.31234

Fields, A., **Heinz, M.V.**, Yoon, M., Kisicki, M. (2021 April). Maintenance ECT in the Treatment of OCD with Somatic Symptoms.

Greg M. Silverman, Raymond L. Finzel, **Heinz, M.V.**, Jake Vasilakes, Reed McEwan, Benjamin C. Knoll, Christopher J. Tignanelli, Hongfang Liu, Hua Xu, Xiaoqian Jiang, Genevieve B. Melton, Serguei VS Pakhomov. Extraction of UMLS Concepts from Clinical Notes using Ensembles of NLP Systems.

Manuscripts in Preparation

Price, G., **Heinz, M.V.**, Zhao, D., Nemesure, M.D., Ruan, F., Jacobson, N.C., An Unsupervised Machine Learning Approach Using Passive Activity to Understand Depression and Schizophrenia.

Applications and Software Development

Heinz, MV, Koby, TR (2019). Algorithm for Detecting Positioning of Endoscopic Camera in Human Tissue. In Use By Artisight. (<https://www.artisight.com>).

Heinz, MV (2019). Algorithm for automated detection and registration of bluetooth n-angulation devices. In Use By Artisight. (<https://www.artisight.com>).

Heinz, MV, Antosh, R. (2014-). QuidPro. A Collaborative Q&A Bank for Medical Education. Live URL: www.quidpro.net, 200+ currently registered users.

Abstracts

Heinz, M.V., Price, G., Ruan, F., Klein, R., Nemesure, M.D., Lopez, A., Jacobson, N.C. (2022, March, Denver Meeting) Detecting Use of Antidepressants Using Passively Wearable Movement Data and Deep Learning in a Large Nationally Representative Sample. Anxiety and Depression Association of America Conference.

Fields, A, **Heinz, MV**, Yoon, M, Kisicki, M. (2021 April). Maintenance ECT in the Treatment of OCD with Somatic Symptoms. Poster presented at the New Hampshire Psychiatry April Meeting, Lebanon, NH USA (virtual conference).

Heinz M, Tauber K, Schleyer W, Keller W. (2020, September) Topiramate Induced Psychosis: A Case Study and Comprehensive Literature Review. Poster presented at the annual meeting of New Hampshire Psychiatry Society , Lebanon, NH USA (virtual conference), Poster Prize (\$50) Winner #

Nemesure, M.D., **Heinz, M.V.**, Huang, R., & Jacobson, N.C. (2020, November). Predictive Modeling of Psychiatric Illness using Electronic Medical Records and a Novel Machine Learning Approach with Artificial Intelligence. Oral symposium presented at Association for Behavioral and Cognitive Therapies (ABCT) in November 2020 Philadelphia, PA. #

Nemesure M, **Heinz MV**, Huang R, Jacobson N. (2020) Predictive Modeling of Psychiatric Illness using Electronic Medical Records and a Novel Machine Learning Approach with Artificial Intelligence [Original Research] American Psychiatric Association Annual Meeting, Philadelphia, PA. (Conference canceled due to COVID-19.) #

Heinz M, Tauber K, Schleyer W, Keller W. (2020, March) Topiramate Induced Psychosis: A Case Study and Comprehensive Literature Review. Poster presented at the annual meeting of British Neuropsychiatry Association, London, UK. #

Meng X*, **Heinz MV***, Ganoë CH, Sieberg RT, Cheung YY, Hassanpour S. (2019, August) Understanding Urgency in Radiology Reporting: Identifying Associations Between Clinical Findings in Radiology Reports and Their Prompt Communication to Referring Physicians. Poster presented at the Medical Informatics International Conference, Lyon, France. #

Wilson B, **Heinz MV**, McCord S, Ley M. Feedback CPR: Breathing New Life Into Evaluations of Medical Students and Trainees. Presentation Panelist American Psychiatric Association 2019 Conference, San Francisco, CA. #

Professional Positions

Institutional Positions and Leadership Roles

Licensure and Certification

2021-	American Board of Psychiatry and Neurology (<u>Scored in top 15% of test-takers</u>)
2021-	New Hampshire Board of Medicine, Licensed
2019	Buprenorphine Waiver Training
2019	Yellow Belt Training Course and Certification

Hospital or Health System Appointments

2021-	Outpatient Psychiatrist, Hanover Psychiatry, Hanover, NH
2021 -	Attending Psychiatrist, Dartmouth-Hitchcock Medical Center, Lebanon, NH
2017- 2021	Dartmouth Hitchcock Medical Center, Resident in Psychiatry

Consulting Activities

2019-2020	Artisight (Machine Vision Technology, artisight.com). Private Contractor, Software Development.
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Professional Development Activities

2020	Certificate, Sequence Models, Machine Learning Track, Coursera
2020	Certificate, Advanced NLP with spaCY, DataCamp
2019	Completed Dartmouth SYNERGY RedCap Workshop

Administrative Activity

Teaching Activities

Institutional Activities

2020	Department of Psychiatry Journal Club, Dartmouth Hitchcock Medical Center
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2019	Department of Psychiatry Journal Club, Dartmouth Hitchcock Medical Center
2019	Substance Use, Social Media, and Artificial Intelligence, VA Medical Center
2019	Department of Psychiatry Journal Club, Dartmouth Hitchcock Medical Center
2019	Healthy Aging Lecture, New Hampshire Psychiatric Hospital
2018	Department of Psychiatry Journal Club, Dartmouth Hitchcock Medical Center
2018	Department of Psychiatry Journal Club, Dartmouth Hitchcock Medical Center

Supervising Trainees

2021-	Supervision of first, second, third, and fourth year residents on call
2020-	Supervision of 10 Dartmouth Undergraduate Students in Development of Training Data to power an AI-driven therapist
2020-2021	Supervision of first year residents on call as senior resident
2017-	Supervision of medical students on psychiatry clerkships and electives

Research Advising

2021-	Franklin Ruan, Dartmouth College, Neukom Scholar
2017	Karrisa Tauber, Dartmouth College Geisel School of Medicine, Project Based

Supported Research Activities

2019-	AI and Mental Health: Innovation in Technology Guided Healthcare Lab at Dartmouth (https://geiselmed.dartmouth.edu/jacobsonlab/people/) (* indicates current project.) Principal Investigator & Advisor: Nicholas Jacobson, Ph.D. Development and Maintenance of Participant Enrollment Platform for R01 Funded National Recruitment * Lead Participant Enrollment Interviews in NIMH R01 Depression Study; specifically conduct structured clinical interview (SCID-5) with national cohort of prospective participants, virtually. Co-management of Opioid Use Disorder Clinical Trial * Development of AI driven therapy-bot for mobile phone; available for iOS platform; Beta Testing * Management Lead of Training Data Creation Platform for Chatbot Training Data * Collaboration with Microsoft and Mental Health America (MHA) using Bing Data to improve mental health assessment * Development of machine learning pipeline for prediction of depression and anxiety in French Undergraduate students
2018-2019	Hassanpour Lab (https://www.hassanpourlab.com)

Development of NLP method for detecting need for urgency in radiology reporting

Program Development

2019- Development of research infrastructure and co-management of database for Dartmouth Hitchcock Pediatric Autoimmune Neuropsychiatric Disorders (PANDAS) Clinic in remote collaboration with Stanford Health System with RedCAP framework.

Entrepreneurial Activities

Areas of Expertise

Innovation in medical industry, including development of a novel algorithm for detection of endoscopic cameras in human tissue, actively in use by Artisight.

In-depth experience working with cutting-edge natural language processing techniques, including working on the development team for an artificial intelligence powered, generative chatbot specialized in providing momentary mental health intervention.

Major Committee Assignments

Memberships, Office and Committee Assignments in Professional Societies

2019- American Psychiatric Association
2019- British Neuropsychiatry Association
2012- Phi Beta Kappa, Foundation Member
2012- Pi Mu Epsilon, Member

Institutional Center or Program Affiliations

2019- Dartmouth Center for Technology and Behavioral Health, Research Collaborator

Editorial Boards

Journal Referee Activity

2021 Reviewer, ACM Transactions on Computing for Healthcare
2020 Reviewer, Stress and Health
2020 Reviewer, AMIA 2020 Annual Symposium
2018 Ad Hoc Reviewer, American Family Physician

Awards and Honors

2020 Research Poster Winner, New Hampshire Psychiatric Society
2020 Dartmouth Travel Award for International Research Presentation
2019 Dartmouth Travel Award for International Research Presentation
2018 Gold Humanism and Excellence in Teaching Award, Geisel School of Medicine at Dartmouth
2013-2017 Creighton Family Medicine Scholarship (\$20,000 / year)

Other Engagement Activities

Invited Presentations

- 2021 Dartmouth-Hitchcock Department of Psychiatry Grand Rounds
- 2021 Heinz, MV, "The ChatBot Will See You Now:" Development of a Deep-Learning Powered Therapist, Presented at Center for Technology and Behavioral Health, Dartmouth College, Hanover, NH

Military Service

- 2018- U.S. Army Reserve Officer (CPT, O3). Army Medical Department Professional Management Command