



Curtis L. Petersen MS, MPH, PhD

Chief Data Officer

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PROFESSIONAL

Ucardia, Austin TX

Chief Data Officer

2019-Current

- System architecture
- Leading front end and back-end development
- Writing data analytic and aggregation pipelines
- Creating user interfaces for data visualizations
- Identifying hardware partners
- Converting clinical needs into remote medical sensing solutions using technology
- Communicating with both internal and external partners

ImagineCare Digital Health, Dartmouth-Hitchcock, Lebanon NH

Data Scientist

2014-2016

- Writing analytic algorithms of passively and actively collected data
- Developing system architecture & logic design of semi-automated response system
- Analyzing, interpreting, & summarizing data to feed into design and business cases
- Conducting systematic reviews and writing clinical care algorithms based on evidence

Druker/Deininger & Dao Lab, Oregon Health & Science University, Portland, OR

Research Assistant II

2009-2013

- Investigated the role of a CXCR4 antagonist in eliminating residual leukemia, Blood 2012
- Studied cytokine effect on JAK2V617F mutations in myeloproliferative neoplasms, Blood 2011
- Investigated the interaction between fanconi anemia, hematopoietic regulators, and betacatenin, Blood 2012

EDUCATION

Dartmouth College, Hanover, NH

Burroughs Wellcome Big Data in the Life Sciences Fellow

Doctor of Philosophy *The Dartmouth Institute for Health Policy & Clinical Practice*

2016-2021

Dissertation: Precision Medicine: The Potential For Connecting Mobile Health Phenotypes To Molecular Profiles

Masters of Science *Quantitative Biomedical Science Program*

2020

Thesis: DNA Methylation As A Clinical Marker

Masters in Public Health *The Dartmouth Institute for Health Policy & Clinical Practice*

2014

Internship: Creating an Accountable Care Organization assessment tool

Capstone Project: Risk of multifocal breast cancer in women with atypical hyperplasia

University of Oregon, Eugene, OR

Bachelors of Science *Biology & Biochemistry*

2009

TEACHING & MENTORING

Teaching Assistant: Dartmouth, MPH/MS Students

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| • PH 139: Epidemiology & Biostatistics I + Lab | Summer 2016 & 2017 |
| • PH 140: Epidemiology & Biostatistics II + Lab | Fall 2016 & 2017 |
| • PH 141: Regression & Other Statistical Approaches + Lab | Winter 2017 |
| • PH 147: Advanced Methods in Health Services Research + Lab | Spring 2017 |

Instructor: Dartmouth, MPH/MS/MD/Postdoc/Residents

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| • Introduction to R: Workshop | Winter 2017 |
| • Graduate Research Peer Mentor | Fall 2017-Spring 2019 |

SKILLS

Technical

Research	Programing
Machine Learning: classification, regression, clustering, feature engineering; Inferential Methods: Experimental & Observational Study Design; Artificial Neural Networks; Repeated Measures: Hierarchical Modeling; Health Informatics: Natural Language Processing; Genomic/Epigenomic Associations: Cell Type Estimation; Molecular Cloning & Cell Culture	R: Shiny, tidyverse, caret; Python: Pandas, Jupyter; Karas/Tensorflow; Stata; SQL/NoSQL; Ract-Native; Bioconductor & Biopython

Non-Technical

Critical Thinking	Communication
Data Wrangling; Teaching Statistical Language Classes (R & Stata); Teaching Epidemiological Concepts; Judged Public Presentations; Protocol Synthesis; Analytic Plans	Manuscripts & Analytic Reports; Building Interactive Data Dashboards; Logic & Conceptual Models; Writing Evidence As Guidelines; Verbal & Poster Presentations; Conflict Resolution & Negotiation

AWARDS & ACHIEVEMENTS

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| • Fellowship: Burroughs Wellcome Fund - Big Data in the Life Sciences Training Program | 2018-2021 |
| • Dartmouth Graduate Student Council President | 2019-2020 |
| • Dartmouth Graduate Student Executive Council Academic Chair | 2018-2019 |
| • Winner of 5th Annual Epidemiology Poster Award, The Obesity Society | 2017 |
| • Student Employee of the Year, University of Oregon | 2009 |
| • Recipient, Benjamin A. Gilman Scholarship (Competitive International Study Program) | 2009 |
| • Eagle Scout, Boy Scouts of America | 2004 |

PUBLICATIONS

Peer Reviewed Manuscripts

ORCID: <https://orcid.org/0000-0002-7210-447X>

Google Scholar Link

Agarwal A*, Fleischman AG*, **Petersen CL***, Loriaux MM, Woltjer R, Druker BJ, Deininger MW, Effects of Plerixafor (AMD3100) In Combination with Tyrosine Kinase Inhibition In a Murine Model of CML. Am Soc Hematology. 2010. 3389-3389. *co-first authors

Fleischman AG, Aichberger KJ, **Petersen CL**, Doratotaj S, Bumm TG, Pahl HL, Druker BJ, Deininger MW, Jak2 V617F Induced TNF Resistance as a Mechanism of Clonal Expansion In Myeloproliferative Neoplasm. Am Soc Hematology. 2010.

Fleischman AG, Aichberger KJ, Luty SB, Bumm TG, **Petersen CL**, Doratotaj S, Vasudevan KB, LaTocha DH, Yang F, Press RD, Loriaux MM, TNF α facilitates clonal expansion of JAK2V617F positive cells in myeloproliferative neoplasms. Blood. 2011., 118(24), pp.6392-6398.

Dao KHT, Rotelli MD, **Petersen CL**, Kaech S, Nelson WD, Yates JE, Newell AEH, Olson SB, Druker BJ, Bagby GC, FANCL ubiquitinates β -catenin and enhances its nuclear function. 2012. Blood, 120(2), pp.323-334.

Agarwal A, Fleischman AG, **Petersen CL**, MacKenzie R, Luty S, Loriaux M, Druker BJ, Woltjer RL, Deininger MW, Effects of plerixafor in combination with BCR-ABL kinase inhibition in a murine model of CML 2012. Blood, 120(13), pp.2658-2668.

Nutter EL, Weiss JE, Marotti JD, Barth RJ Jr, Eliassen MS, Goodrich ME, **Petersen CL**, Onega T, Personal history of proliferative breast disease with atypia and risk of multifocal breast cancer. 2017 Dec 20. Cancer. PMID: 29266172

Petersen CL, Wechsler EV, Halter RJ, Boateng GG, Proctor PO, Kotz DF, Batsis JA, Detection, Monitoring, and Feasibility of Repetitions Using an mHealth-Enabled Resistance Band, ACM ISBN 978-1-4503-5958-0/18/09. Applications, Systems and Engineering Technologies, September 26–28, 2018 <https://doi.org/10.1145/3278576.3278586>

Saunders CH, **Petersen CL**, Durand MA, Bagley PJ, Elwyn G, Bring on the machines: could machine learning improve the quality of patient-education materials? A systematic search and rapid review., JCO Clinical Cancer Informatics. 2018.

Weeks WB, Mishra MK, Curto D, **Petersen CL**, Cano P, Hswen Y, Serra SV, Elwyn G, Godfrey MM, Soro PS, Tomás JF. Comparing Three Methods for Reducing Psychotropic Use in Older Demented Spanish Care Home Residents. J Am Geriatr Soc. 2019 Jul;67(7):1444-1453. doi: 10.1111/jgs.15855. Epub 2019 Mar 8. PMID: 30848834.

Batsis JA, Boateng GG, Seo LM, **Petersen CL**, Fortuna KL, Wechsler EV, Peterson RJ, Cook SB, Pidgeon D, Dokko RS, Halter RJ, Kotz DF. Development and Usability Assessment of a Connected Resistance Exercise Band Application for Strength-Monitoring. World Acad Sci Eng Technol. 2019;13(5):340-348. doi: 10.5281/zenodo. PMID: 31205628; PMCID: PMC6570823.

Petersen CL, Weeks WB, Norin O, Weinstein JN, Development and Implementation of a Person-Centered, Technology-Enhanced Care Model For Managing Chronic Conditions: Cohort Study, JMIR Mhealth Uhealth 2019;7(3):e11082, URL: <https://mhealth.jmir.org/2019/3/e11082>, DOI: 10.2196/11082, PMID: 30892274

Brooks JM, **Petersen CL**, Titus AJ, Umucu E, Chiu CY, Bartels SJ, Batsis JA, Varying Levels of Food Insecurity Associated with Clinically Relevant Depressive Symptoms in U.S. Adults Aged 60 Years and Over: Results from the 2005–2014 National Health and Nutrition Survey, Journal of Nutrition in Gerontology and Geriatrics, 38:3, 218-230, DOI: 10.1080/21551197.2019.1611520

Schott SL, Xu K, Berkowitz J, **Petersen CL**, Saunders C, Sobti N, Coylewright M; Timing of electric health record Integrated Decision Aid (IDeA) for stroke prevention in atrial fibrillation matters; Journal of the American

College of Cardiology Mar 2019, 73 (9 Supplement 1) 3005; DOI: 10.1016/S0735-1097(19)33611-3

Batsis JA, **Petersen CL**, Crow RS, Cook SB, Stevens CJ, Mackenzie TA, Titus A, Bartels SJ, Weight Change and Risk of Frailty: Data from the National Health and Nutrition Examination Surveys 1999-2004. Obesity. 2019. Clinical Nutrition. ISSN 0261-5614, <https://doi.org/10.1016/j.clnu.2019.10.032>. (<http://www.sciencedirect.com/science/article/pii/S0261561419331255>)

Levy JJ, Titus AJ, **Petersen CL**, Chen Y, Salas LA, Christensen BC, MethylNet: A Modular Deep Learning Approach to Methylation Prediction, bioRxiv 692665; doi: <https://doi.org/10.1101/692665>

Crow RS, **Petersen CL**, Cook SB, Titus AJ, MacKenzie TA, Batsis JA, Reported Weight Change in Older Adults and Presence of Frailty. The Journal of Frailty and Aging (JFA). <http://dx.doi.org/10.14283/jfa.2019.44>

Petersen CL, Brooks JM, Titus AJ, Vasquez E, Batsis JA, Relationship Between Food Insecurity and Functional Limitations in Older Adults from 2005-2014 NHANES. Journal of Nutrition in Gerontology and Geriatrics. 2019. DOI: 10.1080/21551197.2019.1617219

Brooks JM, **Petersen CL**, Kelly SM, Reid MC, Likelihood of depressive symptoms in US older adults by prescribed opioid potency: National Health and Nutrition Examination Survey 2005-2013. Int J Geriatr Psychiatry. 2019; 1– 9. <https://doi.org/10.1002/gps.5157>

Batsis JA, **Petersen CL**, Crow RS, Cook SB, Stevens CJ, Mackenzie TA, Weight change and risk of the foundation of National Institute of Health Sarcopenia-defined low lean mass: Data from the National Health and Nutrition examination surveys 1999-2004 [published online ahead of print, 2019 Nov 4]. Clin Nutr. 2019;S0261-5614(19)33125-5. doi:10.1016/j.clnu.2019.10.032

Petersen CL, Mishra MK, Curto D, Cano P, Hsuen Y, Serra SV, Elwyn G, Soro PS, Tomás JF, Weeks WB, Reducing psychotropic medication use in non-demented older care home residents. Journal of General Internal Medicine. (2020) doi:10.1007/s11606-019-05517-2

Levy JJ, Titus AJ, **Petersen CL**, Chen Y, Salas LA, Christensen BC. MethylNet: an automated and modular deep learning approach for DNA methylation analysis. BMC Bioinformatics. 2020 Mar 17;21(1):108. doi: 10.1186/s12859-020-3443-8. PMID: 32183722; PMCID: PMC7076991.

Batsis JA, **Petersen CL**, Cook SB, Al-Nimr RI, Pidgeon D, Mackenzie TA, Bartels SJ. A Community-Based Feasibility Study of Weight-Loss in Rural, Older Adults with Obesity. J Nutr Gerontol Geriatr. 2020 Jul-Dec;39(3-4):192-204. doi: 10.1080/21551197.2020.1817226. Epub 2020 Sep 9. PMID: 32907522; PMCID: PMC7787696.

Batsis JA, **Petersen CL**, Crow RS, Cook SB, Stevens CJ, Seo LM, Brooks E, Mackenzie TA. Weight change and risk of the foundation of National Institute of Health Sarcopenia-defined low lean mass: Data from the National Health and Nutrition examination surveys 1999-2004. Clin Nutr. 2020 Aug;39(8):2463-2470. doi: 10.1016/j.clnu.2019.10.032. Epub 2019 Nov 4. PMID: 31727381; PMCID: PMC7196520.

Petersen CL, Halter R, Kotz D, Loeb L, Cook S, Pidgeon D, Christensen BC, Batsis JA. Using Natural Language Processing and Sentiment Analysis to Augment Traditional User-Centered Design: Development and Usability Study. JMIR Mhealth Uhealth. 2020 Aug 7;8(8):e16862. doi: 10.2196/16862. PMID: 32540843; PMCID: PMC7442942.

Petersen CL, Chen JQ, Salas LA, Christensen BC. Altered immune phenotype and DNA methylation in panic disorder. Clin Epigenetics. 2020 Nov 18;12(1):177. doi: 10.1186/s13148-020-00972-9. PMID: 33208194; PMCID: PMC7672933.

Al-Nimr RI, Wright KCS, Aquila CL, **Petersen CL**, Gooding TL, Batsis JA. Intensive nutrition counseling as part of a multi-component weight loss intervention improves diet quality and anthropometrics in older adults with obesity. Clin Nutr ESPEN. 2020 Dec;40:293-299. doi: 10.1016/j.clnesp.2020.09.002. Epub 2020 Sep 19. PMID: 33183553; PMCID: PMC7670080.

Petersen CL, Minor CM, Mohieldin S, Park LG, Halter RJ, Batsis JA. Remote Rehabilitation: A Field-Based Feasibility Study of an mHealth Resistance Exercise Band. IEEE Int Conf Connect Health Appl Syst Eng Technol. 2020 Dec;2020:5-6. Epub 2021 Jan 21. PMID: 34184001; PMCID: PMC8234905.

Batsis JA, **Petersen CL**, Clark MM, Cook SB, Lopez-Jimenez F, Al-Nimr RI, Pidgeon D, Kotz D, Mackenzie TA, Bartels SJ. A Weight Loss Intervention Augmented by a Wearable Device in Rural Older Adults With Obesity: A Feasibility Study. *J Gerontol A Biol Sci Med Sci*. 2021 Jan 1;76(1):95-100. doi: 10.1093/gerona/glaa115. PMID: 32384144; PMCID: PMC7756700.

Batsis JA, **Petersen CL**, Clark MM, Cook SB, Kotz D, Gooding TL, Roderka MN, Al-Nimr RI, Pidgeon D, Haedrich A, Wright KC, Aquila C, Mackenzie TA. Feasibility and acceptability of a technology-based, rural weight management intervention in older adults with obesity. *BMC Geriatr*. 2021 Jan 12;21(1):44. doi: 10.1186/s12877-020-01978-x. PMID: 33435877; PMCID: PMC7801868.

Whedon JM, Haldeman S, **Petersen CL**, Schoellkopf W, MacKenzie TA, Lurie JD. Temporal Trends and Geographic Variations in the Supply of Clinicians Who Provide Spinal Manipulation to Medicare Beneficiaries: A Serial Cross-Sectional Study. *J Manipulative Physiol Ther*. 2021 Mar;44(3):177-185. doi: 10.1016/j.jmpt.2021.02.002. Epub 2021 Apr 10. PMID: 33849727.

Petersen CL, Christensen BC, Batsis JA. Weight management intervention identifies association of decreased DNA methylation age with improved functional age measures in older adults with obesity. *Clin Epigenetics*. 2021 Mar 2;13(1):46. doi: 10.1186/s13148-021-01031-7. PMID: 33653394; PMCID: PMC7927264.

Seo LM, **Petersen CL**, Halter RJ, Kotz DF, Fortuna KL, Batsis JA. Usability Assessment of a Bluetooth-Enabled Resistance Exercise Band Among Young Adults. *Health Technol (Berl)*. 2021 Apr;5(1):4. doi: 10.21037/ht-20-22. Epub 2021 Apr 30. PMID: 34336543; PMCID: PMC8320739.

Schott SL, Berkowitz J, Dodge SE, **Petersen CL**, Saunders CH, Sobti NK, Xu K, Coylewright M. Personalized, Electronic Health Record-Integrated Decision Aid for Stroke Prevention in Atrial Fibrillation: A Small Cluster Randomized Trial and Qualitative Analysis of Efficacy and Acceptability. *Circ Cardiovasc Qual Outcomes*. 2021 Jun;14(6):e007329. doi: 10.1161/CIRCOUTCOMES.120.007329. Epub 2021 Jun 10. PMID: 34107740.

Mohieldin S, Batsis JA, Minor CM, Halter RJ, Petersen CL. BandPass: A Bluetooth-Enabled Remote Monitoring Device for Sarcopenia. *IEEE Int Conf Commun Workshops*. 2021 Jun;2021:10.1109/iccworkshops50388.2021.9473520. doi: 10.1109/iccworkshops50388.2021.9473520. Epub 2021 Jul 9. PMID: 34745771; PMCID: PMC8570642.

Levy JJ, Chen Y, Azizgolshani N, **Petersen CL**, Titus AJ, Moen EL, Vaickus LJ, Salas LA, Christensen BC. MethylSPWNet and MethylCapsNet: Biologically Motivated Organization of DNAm Neural Networks, Inspired by Capsule Networks. *NPJ Syst Biol Appl*. 2021 Aug 20;7(1):33. doi: 10.1038/s41540-021-00193-7. PMID: 34417465; PMCID: PMC8379254.

Azizgolshani N, **Petersen CL**, Chen Y, Levy JJ, Salas LA, Perreard L, Nguyen LN, Christensen BC. DNA 5-hydroxymethylcytosine in pediatric central nervous system tumors may impact tumor classification and is a positive prognostic marker. *Clin Epigenetics*. 2021 Sep 19;13(1):176. doi: 10.1186/s13148-021-01156-9. PMID: 34538273; PMCID: PMC8451154.

Batsis JA, **Petersen CL**, Cook SB, Al-Nimr RI, Driesse T, Pidgeon D, Fielding R. Impact of whey protein supplementation in a weight-loss intervention in rural dwelling adults: A feasibility study. *Clin Nutr ESPEN*. 2021 Oct;45:426-432. doi: 10.1016/j.clnesp.2021.07.006. Epub 2021 Jul 24. PMID: 34620350; PMCID: PMC8502229.

Manuscripts Under Review & In Revision

Petersen CL, Li X, Halter RJ, Kotz DF, Batsis JA, Positive perceptions of mHealth based physical activity and weight reduction program. *Health Informatics*. 2020

Lynch DH, **Petersen CL**, Fanous MM, Spangler H, Kahkoska AR, Jimenez D, Batsis JA, The Relationship Between Multimorbidity, Obesity, and Functional Impairment in Older Adults.

Manuscripts In Preparation

Nelson HH, Miller JS, Christensen BC, **Petersen CL**, Koestler DC, Kelsey KT, Cytomegalovirus (CMV) is associated with leukocyte PDCD1 methylation and patient outcome in head and neck cancer.

Petersen CL, Jacobson N, Decrease blood pressure during remote medical sensing of hypertensive adults: large open trial.

Lynch DH, **Petersen CL**, Van Dongen MJ, Spangler H, Berkowitz SA, Batsis JA, Association of Food Insecurity and Sarcopenia: Data From the 2011-2014 National Health and Nutrition Examination Survey.

Petersen CL, Jacobson N, Christensen BC, Batsis JA, Use of Remotely Monitoring In Older Adults To Detect Association Between High Levels Of Physical Activity with Decreased Weight and Increased Functional Ability.