

# ELLIOT G MITCHELL

New York, NY

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## EDUCATION

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| <b>Columbia University</b> , New York, NY<br>PhD Student, Biomedical Informatics   | 2016 - 2021 |
| <b>Columbia University</b> , New York, NY<br>Master of Arts, Biomedical Informatics  | 2016 - 2018 |
| <b>Carleton College</b> , Northfield MN<br>Bachelor of Arts in Psychology (with Distinction)<br>Concentration in Cognitive Science | 2009 - 2013 |

## WORK EXPERIENCE

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| <b>Geisinger</b> , Danville, PA (Remote from New York, NY)<br>Senior Data Scientist, Steele Institute for Health Innovation | 2021 - Present |
| <b>Columbia University</b> , New York, NY<br>Graduate Research Assistant  | 2016 - 2021    |
| <b>Project Well</b> , Stamford, CT (Remote from New York, NY)<br>Data Science and Product Management Consultant             | 2020 - 2021    |
| <b>Columbia Technology Ventures</b> , New York, NY<br>Technology Ventures Fellow  | 2019           |
| <b>Epic</b> , Madison, WI<br>Technical Coordinator  | 2015 - 2016    |
| <b>Epic</b> , Madison, WI<br>Technical Services   | 2013 - 2016    |
| <b>Bon Appetit at Carleton College</b> , Northfield, MN<br>Student Manager, Food Services                                   | 2010 - 2013    |

## HONORS and AWARDS

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| <b>Stage 1 Finalist</b> CMS AI Health Outcomes Challenge                      | 2019 - 2020 |
| <b>First Place</b> AMIA Student Design Challenge, with Lisa Grossman          | 2018        |
| <b>First Place</b> AMIA Student Design Challenge, with Lisa Grossman          | 2017        |
| <b>Third Place</b> HITLAB World Cup of Voice-Activated Technology in Diabetes | 2017        |
| <b>Top 5 Finalist</b> Alexa Diabetes Challenge                                | 2017        |
| <b>Phi Beta Kappa</b> Carleton College  | 2013        |
| <b>Magna Cum Laude</b> Carleton College                                       | 2013        |
| <b>Sigma Xi</b> Carleton College  | 2013        |
| <b>Dean's List</b> Carleton College   | 2011 - 2013 |

## PUBLICATIONS

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- Mitchell EG**, Elhadad N, Mamykina L. Examining AI Methods for Micro-Coaching Dialogs. *CHI 2022: Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems*. April 2022. doi:10.1145/3491102.3501886
- Liu LG, Grossman RH, **Mitchell EG**, Weng C, Natarajan K, Hripcsak G, Vawdrey DK. A deep database of medical abbreviations and acronyms for natural language processing. *Scientific Data*. 2021 Jun 2;8(1):1-9. doi:10.1038/s41597-021-00929-4
- Mitchell EG**, Maimone R, Tobin, JN, Cassells A, Davidson P, Smaldone AM, Mamykina L. Automated vs. Human Health Coaching: Exploring participant and practitioner experiences. *Proceedings of the ACM on Human-Computer Interaction*. *CSCW 2021* doi:10.1145/3449173
- Mitchell EG**, Heitkemper E, Burgermaster M, Levine M, Miao Y, Hwang M, Desai P, Cassells A, Tobin J, Tabak EG, Smaldone AM, Albers DJ, and Mamykina L. From Reflection to Action: Combining Machine Learning with Expert Knowledge for Nutrition Goal Recommendations. *CHI 2021: Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems* doi:10.1145/3411764.3445555
- Mitchell EG**, Tabak E, Levine M, Mamykina L, Albers D. Enabling Personalized Decision Support with Patient-Generated Data and Attributable Components. *Journal of biomedical informatics*. (2021) 103639. doi:10.1016/j.jbi.2020.103639
- Turchioe MR, Burgermaster M, **Mitchell EG**, Desai PM, Mamykina L. Adapting the stage-based model of personal informatics for low-resource communities in the context of type 2 diabetes. *Journal of biomedical informatics*. 2020 Sep 20:103572. doi:10.1016/j.jbi.2020.103572
- Desai PM, **Mitchell EG**, Hwang ML, Levine ME, Albers DJ, Mamykina L. Personal Health Oracle: Explorations of Personalized Predictions in Diabetes Self-Management. *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems*. doi:10.1145/3290605.3300600
- Mitchell EG\***, Grossman LV\*, Hripcsak G, Weng C, Vawdrey DK. A method for harmonization of clinical abbreviation and acronym sense inventories. *Journal of biomedical informatics*. 2018 Dec 1;88:62-9. doi:10.1016/j.jbi.2018.11.004
- Grossman LV, Feiner SK, **Mitchell EG**, Creber RM. Leveraging Patient-Reported Outcomes Using Data Visualization. *Applied clinical informatics*. 2018 Jul;9(03):565-75. doi:10.1055/s-0038-1667041

## PRESENTATIONS

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### CONFERENCE and WORKSHOP PRESENTATIONS

- Mitchell EG**, Mamykina L. “There For You Every Day”: Pilot Study of an Automated Conversational Health Coach *American Medical Informatics Association (AMIA) Annual Symposium*. November 2021. San Diego, CA.
- Chen R, Averitt A, Bear Don’t Walk O, Bhavé S, Grossman Liu L, **Mitchell EG**, Rodriguez V, Thangaraj P, Sun T. The CLinically Explainable Actionable Risk (CLEAR) Model. *American Medical Informatics Association (AMIA) Annual Symposium*. November 2020. (Virtual)
- Mitchell EG**, Mamykina L. Computational Approaches to Support Automated Conversational Health Coaching. *International Conference on AI in Medicine Doctoral Consortium*, August, 2020. Minneapolis, MN (Virtual)
- Mitchell EG**, Mamykina L. Automated Conversational Health Coaching. Plenary Presentation *National Library of Medicine Informatics Training Conference*, June, 2020. Virtual.

- Mitchell EG**, Mamykina L. The Coach with the Most: Towards Conversational Health Coaching. *Conversational Agents for Health Workshop (CHI 2020)*, April, 2020. Virtual.
- Mitchell EG**, Burgermaster M, Heitkemper E, Levine M, Miao Y, Tabak E, Albers D, Smaldone A, and Mamykina L. Feasibility of a machine learning based method to generate personalized nutrition goals for diabetes self-management. *AMIA Annual Symposium*, November, 2019. Washington, DC.
- Grossman LV, **Mitchell EG**, Hripcsak G, Weng C, Vawdrey DK. A method for harmonization of clinical abbreviation and acronym sense inventories. *National Library of Medicine Informatics Training Conference*, June, 2019. Indianapolis, IN. **Best Presentation Award**
- Mitchell EG**, Burgermaster M, Heitkemper E, Levine M, Miao Y, Desai P, Hwang M, Tabak E, Albers D, Smaldone A, and Mamykina L. 2019. Personalized, data-driven recommendations for diabetes self-management with GlucoGoalie. *Workshop on Interactive Systems in Healthcare (WISH)* May, 2019. Glasgow, UK.
- Mitchell EG**, Burgermaster M, Heitkemper E, Reading M, Levine ME, Miao Y, Desai P, Mamykina L. An Intelligent Voice Assistant for Diabetes Self-Management: T2D2 Taming Type 2 Diabetes, Together. *AMIA Annual Symposium*, November, 2018. San Francisco, CA.
- Mitchell EG**, Burgermaster M, Heitkemper E, Mamykina L. Designing Conversational Interfaces for Diabetes Self-Management. *American Association of Diabetes Educators*, August, 2018. Baltimore, MD.
- Mitchell EG**, Opportunities for Conversational Voice Assistants in Chronic Disease Self-Management. *National Library of Medicine Informatics Training Conference*, June, 2018. Nashville, TN.
- CONFERENCE ABSTRACTS**
- Mitchell EG**, Mamykina L. From the Curtain to Kansas: Conducting Wizard-of-Oz Studies in the Wild. *CHI Conference on Human Factors in Computing Systems Extended Abstracts (CHI '21 Extended Abstracts)* May 08-13, 2021, Yokohama, Japan. Case Study. doi:10.1145/3411763.3443446
- Lena Mamykina, Arlene M. Smaldone, Suzanne Bakken, Noemie Elhadad, **Elliot G. Mitchell**, Pooja M. Desai, Matthew E. Levine, Jonathan N. Tobin, Andrea Cassells, Patricia G. Davidson, David J. Albers and George Hripcsak. 2021. Scaling Up HCI Research: from Clinical Trials to Deployment in the Wild. *CHI Conference on Human Factors in Computing Systems Extended Abstracts (CHI '21 Extended Abstracts)*. May 08-13, 2021, Yokohama, Japan. Case Study. doi:10.1145/3411763.3443437
- Samantha Olinsky, Pooja M. Desai, Selen Turkey, Elizabeth M Heitkemper, **Elliot G Mitchell**, Lena Mamykina, and Maria L. Hwang. 2021. Meals for Monsters: a Mobile Application for the Feasibility of Gaming and Social Mechanisms. *Extended Abstracts of the 2021 CHI Conference on Human Factors in Computing Systems*. May 08-13, 2021, Yokohama, Japan. doi:10.1145/3411763.3451789
- Mitchell EG**, Maimone R, Mamykina L. Characterizing Human vs. Automated Coaching: Preliminary Results. *CHI EA 20: Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems*. May 2020. doi:10.1145/3334480.3383081
- Juul F, Mamykina L, Almonte A, Sepulveda J, Heitkemper E, **Mitchell EG**, Burgermaster M. User Experiences with Platano, a Dietary Self-Monitoring App for Underserved Patients with Type 2 Diabetes. *Journal of Nutrition Education and Behavior*. 2019 Jul 1;51(7):S44-5. doi:10.1016/j.jneb.2019.05.404
- Burgermaster M, Juul F, **Mitchell E**, Heitkemper E, Sepulveda J, Almonte A, Mamykina L. Personal Informatics Technology for Engagement in Community Health (PI-TECH): Mixed Methods Study of Platano, a Motivationally Tailored App for Dietary Diabetes Management. *Current Developments in Nutrition*, Vol. 3, Issue Supplement\_1, June 2019, nzz050. P1605119, doi:10.1093/cdn/nzz050.P16-051-19

## POSTERS

- Chen R, Rodriguez V, Grossman Liu LV, **Mitchell EG**, Averitt A, Bear Don't Walk O, Bhave S, Sun T, Thangaraj P, and the Columbia DBMI CMS AI Challenge Team. Engendering Trust and Usability in Clinical Prediction of Unplanned Admissions: The CLinically Explainable Actionable Risk (CLEAR) Model. *Machine Learning for Health (MLHC)*. August 2020.
- Mitchell EG**, Burgermaster M, Heitkemper E, Mamykina L. Perceptions of Conversational Voice Assistants Among Diabetes Care and Education Specialists. *Association of Diabetes Care and Education Specialists*. August 2020.
- Mitchell EG**, Mamykina L. T2Coach: A conversational agent health coach for diabetes self-management. *Data Science Day 2020: Virtual Preview*. March 2020.
- Mitchell EG**, Mamykina L. Towards automated conversational health coaching. *New York Academy of Sciences (NYAS) Natural Language, Dialog, and Speech (NDS) Symposium*, November 2019, New York, NY.
- Mitchell EG**, Levine M, Mamykina L, Tabak E, Albers D. Machine learning for personalized decision support with patient-generated health data. *AMIA Annual Symposium*, November 2019. Washington, DC.
- Mitchell EG**, Heitkemper E, Ensari I, Albers D, Smaldone A, Mamykina L. Data-Driven Personalization of Nutrition and Physical Activity Goals for Diabetes Self-Management. *Columbia Data Science Institute (DSI) Data Science Day*, 2019. New York, NY.
- Mitchell EG**, Levine ME, Miao Y, Burgermaster M, Hwang M, Heitkemper E, Smaldone A, Albers DJ, Mamykina L. Automated Generation of Personalized Nutrition Goals for Diabetes Self-Management with Platano. *Columbia Data Science Institute (DSI) Data Science Day*, 2018. New York, NY.
- Mitchell EG**, Levine ME, Albers DJ, Mamykina L. Reflecting on Diabetes Self-Management Logs with Simulated, Continuous Blood Glucose Curves: A Pilot Study. *AMIA Annual Symposium*, November 2017. Chicago, IL.

## CHALLENGES and COMPETITIONS

- Mitchell EG**, Grossman LV. A Multimodal Conversational Agent to Support Diabetes Self-Management. *AMIA Annual Symposium Student Design Challenge*, 2018 (**First place**)
- Grossman LV, **Mitchell EG**. Visualizing the Patient-Reported Outcomes Measurement Information System (PROMIS) Measures for Clinicians and Patients. *AMIA Annual Symposium Student Design Challenge*, 2017 (**First place**)
- Mitchell EG**, Burgermaster M, Heitkemper E, Reading M, Levine ME, Miao Y, Desai P, Mamykina L. Presenting T2D2: Taming Type 2 Diabetes, Together. *Alexa Diabetes Challenge Demo Day*, 2017 (**Top 5 finalist**)
- Mitchell EG**, Burgermaster M, Heitkemper E, Reading M, Levine ME, Miao Y, Desai P, Mamykina L. Presenting T2D2: Taming Type 2 Diabetes, Together. *HITLAB World Cup Demo Day*, 2017 (**Third place**)

## INVITED TALKS

- Personalizing Health Goals with Data Science. *Columbia Data Science Institute Health Analytics Center Workshop*, February 2020.
- Voice Technology. *Society for Nutrition Education and Behavior (SNEB) Digital Tech for Nutrition Education Roundup*, April 2019.

## REVIEW ACTIVITY

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|---|----------------|
| <i>American Medical Informatics Association (AMIA) Annual Symposium</i> | 2017 - Present |
| <i>CHI Conference on Human Factors in Computing Systems</i>             | 2018 - Present |
| <i>Information Technology &amp; People</i>                              | 2019 - Present |
| <i>Journal of Biomedical Informatics (JBI)</i>                          | 2020 - Present |
| <i>Journal of the American Medical Informatics Association (JAMIA)</i>  | 2020 - Present |
| <i>Transactions on Interactive Intelligent Systems (TiiS)</i>           | 2021 - Present |

## SERVICE and MENTORSHIP

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| <b>Mentor</b> , AMIA High School Scholars Program  | 2019        |
| <b>Student Planning Committee</b> , NLM Informatics Training Conference, Indianapolis, IN<br>SPC member for National Library of Medicine Informatics Training Conference | 2019        |
| <b>Assistant Editor</b> , MedInfo2019<br>Member of the MedInfo2019 Congress Proceedings Editorial Team   | 2019        |
| <b>Student Representative</b> , Columbia University DBMI, New York, NY<br>Elected by peers for two-year term   | 2018 - 2020 |
| <b>Co-Teaching Volunteer</b> , TEALS, New York, NY<br>Introduction to Computer Science at Inwood Academy for Leadership  | 2018 - 2019 |

## PROFESSIONAL MEMBERSHIPS

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| <b>Association of Computing and Machinery,<br/>Special Interest Group on Human-Computer Interaction (SIGCHI)</b> | 2018 - Present |
| <b>American Medical Informatics Association</b>  | 2016 - Present |
| <b>The New York Academy of Sciences</b>  | 2016 - Present |

## TEACHING EXPERIENCE

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| <b>Teaching Assistant</b> , Columbia University, New York, NY<br>BINF G4008 - Intelligent Decision Support: History, Paradigms, and Applications  | Fall 2019   |
| <b>Workshop Organizer</b> , The Chapin School Senior Intern Week Program<br>Workshop: Evaluating the impact of interactive prototypes and systems | June 2019   |
| <b>Co-Teaching Volunteer</b> , TEALS, New York, NY<br>Introduction to Computer Science at Inwood Academy for Leadership                           | 2018 - 2019 |
| <b>Teaching Assistant</b> , Columbia University, New York, NY<br>BINF G6001 Research Methods  | Spring 2019 |
| <b>Teaching Assistant</b> , Columbia University, New York, NY<br>BINF G4003 Symbolic Methods  | Spring 2018 |
| <b>Mentor</b> , Epic, Madison, WI   | 2014 - 2016 |