CURRICULUM VITAE

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Education

2023	**Ph.D.**, Human-Computer Interaction Carnegie Mellon University Advisor: Dr. Louis-Philippe Morency **Thesis:** *Multimodal and Dyadic Modeling of Client-Therapist Interaction*
2022	**M.S.**, Human-Computer Interaction Carnegie Mellon University Advisor: Dr. Louis-Philippe Morency
2015	**B.S.**, Computer Science, **B.S.**, Mathematics, *magna cum laude*, 3.6/4.0 North Carolina State University Minor concentrations: Cognitive Science, Physics Phi Kappa Phi, Sigma Pi Sigma University Honors, Computer Science Honors, Mathematics Honors

Research Experience

2016 –2023	**Graduate Research Assistant**, Human-Computer Interaction Institute Carnegie Mellon University The MultiComp Lab (Dr. Louis-Philippe Morency)
2015 – 2016	**Graduate Research Assistant**, Center for Educational Informatics North Carolina State University The LearnDialogue Group (Dr. Kristy Boyer), The Intellimedia Group (Dr. James Lester)
2013 – 2015	**Undergraduate Researcher**, Center for Educational Informatics North Carolina State University The LearnDialogue Group (Dr. Kristy Boyer)

Research Interests

- AFFECTIVE COMPUTING: affective interfaces, cognitive-affective models, emotion and affect recognition, social signal processing
- MULTIMODAL MACHINE LEARNING: verbal and non-verbal modalities of behavior, probabilistic and causal statistical modeling
- ARTIFICIAL INTELLIGENCE: user modeling, multimodal behavior analysis
- HEALTH BEHAVIOR INFORMATICS: AI & healthcare, diagnostic support tools, technology in psychiatry
- LEARNING TECHNOLOGIES: AI & education, intelligent tutoring systems, tutorial interaction

Honors and Awards

- Outstanding Paper, Twenty-Fourth International Conference on User Modeling, Adaptation, and Personalization, 2016.
- Exemplary Paper, Ninth International Conference on Educational Data Mining, 2016.
- Best Paper Award, Twenty-Third International Conference on User Modeling, Adaptation, and Personalization, 2015.
- National Science Foundation Graduate Research Fellowship, 2015.
- North Carolina State University Department of Computer Science Senior Award for Scholarly Achievement, 2015.
- Generation Google Scholarship, 2014.
- North Carolina Society of Information Management Scholarship, 2013, 2014.
- Howard A. Petrea Endowed Scholarship in Mathematics, 2013.

Journal Publications

1. J. Girard*, **A. Vail***, E. Liebenthal, K. Brown, C. Kilciksiz, L. Pennant, E. Liebson, D. Öngür, L.-P. Morency, J. Baker. Computational Analysis of Spoken Language in Acute Psychosis and Mania. *Schizophrenia Research*, 2021. (*equal contribution)
   https://doi.org/10.1016/j.schres.2021.06.040

Conference Publications

2. **A. Vail**, J. Girard, L. Bylsma, J. Fournier, H. Swartz, J. Cohn, L.-P. Morency. Representation Learning for Interpersonal and Multimodal Behavior Dynamics: A Multiview Extension of Latent Change Score Models. *Proceedings of the Twenty-Fifth International Conference on Multimodal Interaction (ICMI 2023)*, Paris, France, 2023.
   https://doi.org/10.1145/3577190.3614118

3. **A. Vail**, J. Girard, L. Bylsma, J. Cohn, J. Fournier, H. Swartz, L.-P. Morency. Toward Causal Understanding of Therapist-Client Relationships: A Study of Language Modality and Social Entrainment. *Proceedings of the Twenty-Fourth International Conference on Multimodal Interaction (ICMI 2022)*, Bangalore, India, 2022.
   https://doi.org/10.1145/3536221.3556616

4. **A. Vail**, J. Girard, L. Bylsma, J. Cohn, J. Fournier, H. Swartz, L.-P. Morency. Goals, Tasks, and Bonds: Toward the Computational Assessment of Therapist Versus Client Perception of Working Alliance. *Proceedings of the Sixteenth International Conference on Automatic Face and Gesture Recognition (FG 2021)*, Jodhpur, India, 2021.
   https://doi.org/10.1109/fg52635.2021.9667021

5. **A. Vail**, E. Liebson, J. Baker, L.-P. Morency. Toward Objective, Multifaceted Characterization of Psychotic Disorders: Lexical, Structural, and Disfluency Markers of Spoken Language. *Proceedings of the Twentieth International Conference on Multimodal Interaction (ICMI 2018)*, Boulder, Colorado, 2018.
   https://doi.org/10.1145/3242969.3243020

6. **A. Vail**, T. Baltrušaitis, L. Pennant, E. Liebson, J. Baker, L.-P. Morency. Visual Attention in Schizophrenia: Eye Contact and Gaze Aversion during Clinical Interactions. *Proceedings of the Seventh International Conference on Affective Computing and Intelligent Interaction (ACII 2017)*, San Antonio, Texas, 2017.
   https://doi.org/10.1109/ACII.2017.8273644

7. **A. Vail**, J. Grafsgaard, K. Boyer, E. Wiebe, J. Lester. Gender Differences in Facial Expressions of Affect During Learning. *Proceedings of the Twenty-Fourth International Conference on User Modeling, Adaptation, and Personalization (UMAP 2016)*, Halifax, Canada, 2016.
   https://doi.org/10.1145/2930238.2930257
   Outstanding Paper

8. **A. Vail**, J. Wiggins, J. Grafsgaard, K. Boyer, E. Wiebe, J. Lester. The Affective Impact of Tutor Questions: Predicting Frustration and Engagement. *Proceedings of the Ninth International Conference on Educational Data Mining (EDM 2016)*, Raleigh, North Carolina, 2016.
   https://eric.ed.gov/?id=ED592731
   Exemplary Paper

9. W. Min, J. Wiggins, L. Pezzullo, **A. Vail**, K. Boyer, B. Mott, M. Frankosky, E. Wiebe, J. Lester. Predicting Dialogue Acts for Intelligent Virtual Agents with Multimodal Student Interaction Data. *Proceedings of the Ninth International Conference on Educational Data Mining (EDM 2016)*, Raleigh, North Carolina, 2016.
   https://eric.ed.gov/?id=ED592692

10. **A. Vail**, J. Grafsgaard, K. Boyer, E. Wiebe, J. Lester. Predicting Learning from Student Affective Response to Tutor Questions. *Proceedings of the Thirteenth International Conference on Intelligent Tutoring Systems (ITS 2016)*, Zagreb, Croatia, 2016.
    https://doi.org/10.1007/978-3-319-39583-8_15

11. **A. Vail**, K. Boyer, E. Wiebe, J. Lester. The Mars and Venus Effect: The Influence of User Gender on the Effectiveness of Adaptive Task Support. *Proceedings of the Twenty-Third International Conference on User Modeling, Adaptation, and Personalization (UMAP 2015)*, Dublin, Ireland, 2015.
    https://doi.org/10.1007/978-3-319-20267-9_22
    Best Paper Award

12. **A. Vail**, J. Grafsgaard, J. Wiggins, J. Lester, K. Boyer. Predicting Learning and Engagement in Tutorial Dialogue: A Personality-Based Model. *Proceedings of the Sixteenth ACM International Conference on Multimodal Interaction (ICMI 2014)*, Istanbul, Turkey, 2014.
    https://doi.org/10.1145/2663204.2663276

13. J. Grafsgaard, J. Wiggins, **A. Vail**, K. Boyer, E. Wiebe, J. Lester. The Additive Value of Multimodal Features for Predicting Engagement, Frustration, and Learning During Tutoring. *Proceedings of the Sixteenth ACM International Conference on Multimodal Interaction (ICMI 2014)*, Istanbul, Turkey, 2014.
    https://doi.org/10.1145/2663204.2663264
    Nominated for Outstanding Paper Award

14. **A. Vail**, K. Boyer. Adapting to Personality Over Time: Examining the Effectiveness of Dialogue Policy Progressions in Task-Oriented Interaction. *Proceedings of the Fifteenth Annual Meeting of the Special Interest Group on Discourse and Dialogue (SIGDIAL 2014)*, Philadelphia, Pennsylvania, 2014.
    https://doi.org/10.3115/v1/W14-4306

15. **A. Vail**, K. Boyer. Identifying Effective Moves in Tutoring: On the Refinement of Dialogue Act Annotation Schemes. *Proceedings of the Twelfth International Conference on Intelligent Tutoring Systems (ITS 2014)*, Honolulu, Hawaii, 2014.
    https://doi.org/10.1007/978-3-319-07221-0_24

Academic Service

- ACM International Conference on Multimodal Interaction (ICMI), 2017–2023.
- International Conference on Affective Computing & Intelligent Interaction (ACII), 2021–2024.
- IEEE Transactions on Affective Computing (TAFFC), 2018–2024.
- ACM Conference on Human Factors in Computing Systems (CHI) 2019–2024.
- Public Library of Science (PLOS ONE), 2019–2023
- IEEE Transactions on Learning Technologies (TLT), 2017– 2020.
- International Journal of Human–Computer Interaction (IJHCI), 2019.

Teaching Experience

2021   **Graduate Teaching Assistant**, Carnegie Mellon University
Human-Computer Interaction Institute

       Spring 2021   05-610: User-Centered Research and Evaluation
Dr. Raelin Musuraca and Dr. Motahhare Eslami
~90 students

2019   **Graduate Teaching Assistant**, Carnegie Mellon University
Language Technologies Institute

       Spring 2019   11-776: Multimodal Affective Computing
Dr. Louis-Philippe Morency
~30 students

2013 – 2014   **Teaching Assistant**, North Carolina State University
Department of Computer Science

       Fall 2013   CSC 226: Discrete Mathematics for Computer Scientists
Dr. Tiffany Barnes
~250 students

       Spring 2014   CSC 230: C and Software Tools
Dr. Sarah Heckman
~120 students

2012 – 2013   **Mathematics & Physics Tutor**, North Carolina State University
College Reading & Learning Association: Level II Advanced Tutor Certification

Relevant Coursework

Graduate Coursework

Spoken Dialogue Systems	Artificial Intelligence I, II
Computational Applied Logic	Combinatorics I
Software Engineering	Graph Theory
Numerical Analysis I	Automated Learning and Data Analysis
Reasoning Under Uncertainty	Human Communication and Multimodal
Process and Theory in HCI	Computation
Computer Science Perspectives in HCI	Advanced Multimodal Machine Learning
Social Perspectives in HCI	Computer Vision
Design Perspectives in HCI	Data Visualization
Cognitive Science Perspectives in HCI	Experimental Design for Behavioral and
Interaction Design Overview	Social Sciences

Undergraduate Coursework

Computer Organization and Assembly
    Language for Computer Scientists
C and Software Tools
Concepts and Facilities of Operating
    Systems for Computer Scientists
Data Structures
Automata, Grammars, and Computability
Ethics in Computing
Introduction to Artificial Intelligence

Technology & American Culture
The Creative Process in Science
Self, Schooling, & Social Order
Introduction to College Tutoring

Foundations of Advanced Mathematics
Calculus I, II, III
Applied Differential Equations I
Introduction to Linear Algebra
Introduction to Modern Algebra for
    Mathematicians
Introduction to Combinatorics
Probability and Statistics for Engineers
Mathematical Analysis I, II
Mathematics of Scientific Computing
Symbolic Logic

Introduction to Language & Linguistics
Introduction to Cognitive Science
Introduction to Psychology
Cognitive Processes

Professional Membership

- Association for Computing Machinery (ACM).
- Association for the Advancement of Affective Computing (AAAC).
- International Artificial Intelligence in Education Society (IAIED).
- Institute of Electrical and Electronics Engineers (IEEE).
- International Educational Data Mining Society (IEDMS).
- Students & Technology in Academia, Research, and Service (STARS) Student Leadership Corps.