

# Andrew Forney, PhD

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## CURRENT POSITION

### Assistant Professor

August 2017 - Present

Department of Computer Science

Loyola Marymount University (LMU)

Instructor of Record: Data Structures, Algorithms, Artificial Intelligence, Cognitive Systems Design

## EDUCATION

### University of California Los Angeles, Los Angeles (UCLA)

Doctor of Philosophy (Ph.D.), Computer Science

2018

Major: Artificial Intelligence, Minors: Data Information Management & Statistics

Research interests: counterfactual inference, causal reinforcement learning, experimental design, computing pedagogy

### University of California Los Angeles, Los Angeles

Master of Science (M.S.), Computer Science

2015

### Loyola Marymount University, Los Angeles

Bachelor of Science (B.S.), Majors: Computer Science & Psychology, Minor: Pure Mathematics

2012

Summa cum laude

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## PUBLICATIONS & PRESENTATIONS

### PUBLICATIONS

**Forney, A.** & Willey C. (submitted). Recommender Systems in Confounded Decision-making Scenarios: Characterization, Identification, and Prognosis. Submitted to *ACM Transactions on Recommender Systems*.

† Epps, M., † Njoo, L., Willey, C., & **Forney, A.** (2023). Adapting Abstractive Summarization to Court Examinations in a Zero-Shot Setting: A Short Technical Paper. In *Proceedings of the ICAIL 2023 Workshop on Artificial Intelligence for Access to Justice* co-located with 19th International Conference on AI and Law (ICAIL-2023).

Kim, S., **Forney, A.**, Cappelli, C., Doezema, L., Morales, V. C., & Ruengvirayudh, P. (2023). Examining Timely Positive Interventions Utilized by First-Year Students to Improve their Course Grades in Science and Engineering. In *American Society for Engineering Education Annual Conference Content (ASEE-2023)*.

**Forney, A.** & Mueller, S. (2022). Causal Inference in AI Education: A Primer. *Jour. of Causal Inference*, 10(1), 141-173.

Cinelli, C., **Forney, A.**, and Pearl, J. (2022). A Crash Course on Good and Bad Controls. *Sociological Methods and Research*.

† Kitamura, M., Korpusik, M., & **Forney, A.** (2022). Pacman Trainer: Classroom-Ready Deep Learning from Data to Deployment. In *American Society for Engineering Education Annual Conference Content (ASEE-2022)*.

† Browne, A. & **Forney, A.** (2022). Exploiting Causal Structure for Transportability in Online, Multi-Agent Environments. In *Proceedings of the 21st International Conference on Autonomous Agents and Multiagent Systems (AAMAS-22)*.

**Forney, A. & Kim, S. (2020).** Redefining Retention in STEM Education: New Perspectives on a Student-centered Metric of Success. In *American Society for Engineering Education Annual Conference Content (ASEE-2020)*.

➤ Educational Research and Methods Division (ERM) Best Paper Finalist (Top 4).

**Forney, A. & Bareinboim, E. (2019).** Counterfactual Randomization: Rescuing Experimental Studies from Obscured Confounding. In *Proceedings of the 34th International Conference of the Association for the Advancement of Artificial Intelligence (AAAI-19)*.

**Forney, A., Pearl, J., & Bareinboim, E. (2017).** Counterfactual Data-Fusion for Online Reinforcement Learners. In *Proceedings of the 34th International Conference on Machine Learning (ICML-17)*.

➤ Nominated for “Most Visionary Paper” Award at TiRL-AAMAS-17.

\*Bareinboim, E., \***Forney, A., & Pearl, J. (2015).** Bandits with Unobserved Confounders: A Causal Approach. In *Proceedings of the 28th Annual Conference on Neural Information Processing Systems (NeurIPS-15)*.

Gilbert, R., Dionisio, J, **Forney, A., & Dorin, P. (2015).** The Identity Mapping Project: Demographic differences in patterns of distributed identity. In *Annual Review of Cybertherapy and Telemedicine 2015: Virtual Reality in Healthcare: Medical Simulation and Experiential Interface, 219 (2016): 91*.

Gilbert, R. & **Forney, A. (2014).** Can Avatars Pass the Turing Test? Intelligent Agent Perception in a 3D Virtual Environment. *International Journal of Human-Computer Studies, 73, 30-36*.

Gilbert, R. & **Forney, A. (2013).** The Distributed Self: Virtual Worlds and the Future of Human Identity. In *D. Powers & R. Teigland (eds.) The Immersive Internet: Reflections on the Entangling of the Virtual with Society, Politics and the Economy*. Palgrave-Macmillan, 23-37.

## PRESENTATIONS

† Epps, M., † Njoo, L., Willey, C., & **Forney, A. (2023).** Adapting Abstractive Summarization to Court Examinations in a Zero-Shot Setting: A Short Technical Paper. Presented at the ICAIL 2023 Workshop on Artificial Intelligence for Access to Justice co-located with 19th International Conference on AI and Law (ICAIL-2023), Braga, Portugal.

Kim, S., **Forney, A.,** Cappelli, C., Doezema, L., Morales, V. C., & Ruengvirayudh, P. (2023). Examining Timely Positive Interventions Utilized by First-Year Students to Improve their Course Grades in Science and Engineering. Presented at the American Society for Engineering Education Annual Conference (ASEE-2023), Baltimore, MD.

† Kitamura, M., Korpusik, M., & **Forney, A. (June, 2022).** Pacman Trainer: Classroom-Ready Deep Learning from Data to Deployment. Presented at the 129th Annual Conference of the American Society for Engineering Education (ASEE-22), Minneapolis, MN.

† Browne, A., & **Forney, A. (May, 2022).** “Exploiting Causal Structure for Transportability in Online, Multi-Agent Environments.” Presented at the 21st International Conference on Autonomous Agents and Multiagent Systems (AAMAS-22), Virtual.

**Forney, A. & Kim, S. (May, 2020).** “Redefining Retention in STEM Education: New Perspectives on a Student-centered Metric of Success.” Presented at the American Society for Engineering Education Annual Conference Content (ASEE-20), Virtual.

† Njoo, L., † Barreto, M. & **Forney, A.** (April, 2020). “Briefcase: Intelligent Court Transcript Management.” Presented at the 12th Annual LMU Undergraduate Research Symposium, Virtual.

**Forney, A.** (December, 2019). “A Gentle Introduction to the Causal Hierarchy and Counterfactual Randomization.” Invited talk at the Annual Global Innovative Methods with Big Data and Artificial Intelligence (IM-DATA) Conference, Pasadena, CA.

† Azinge, C., & **Forney, A.** (April, 2019). “Applications of Empirical Counterfactuals for Online Recommender Systems.” Presented at the 11th Annual LMU Undergraduate Research Symposium, Los Angeles, CA.

**Forney, A.** & Bareinboim, E. (January, 2019). “Counterfactual Randomization: Rescuing Experimental Studies from Obscured Confounding.” Presented at the 34th International Conference of the Association for the Advancement of Artificial Intelligence (AAAI-19), Honolulu, HI.

**Forney, A.,** Pearl, J., & Bareinboim, E. (August, 2017). “Counterfactual Data-Fusion for Online Reinforcement Learners.” Presented at the 34th International Conference on Machine Learning (ICML-17), Sydney, Australia.

**Forney, A.,** Pearl, J., & Bareinboim, E. (August, 2017). “Counterfactual Data-Fusion for Online Reinforcement Learners.” Presented at the Transfer in Reinforcement Learning Workshop in the 16th International Conference on Autonomous Agents and Multiagent Systems (TiRL-AAMAS-17), São Paulo, Brazil.

**Forney, A.** (February, 2016). “Active Learning for Problem-Based Disciplines.” Invited talk to the UCLA TA Training Program Workshop, Los Angeles, CA.

**Forney, A.** (April, 2016). “Misconceptions of AI.” Invited talk to the Bruin Alliance of Skeptics and Secularists, Los Angeles, CA.

Gilbert, R., **Forney, A.,** Dionisio, J., & Dorin, P. (July, 2015). “The Identity Mapping Project: Demographic differences in patterns of distributed identity.” Presented at the 20th Meeting of the Cyberpsychology, Cybertherapy and Social Networking Conference: Connecting the virtual and the real, San Diego, CA.

**Forney, A.** (June, 2014). “Humanizing machines.” Panelist at Immersion 2014: The Personal and Cultural Impact of Leading Edge Digital Technologies, Los Angeles, CA.

Dahilig J., **Forney A.,** Nichols T., & Dionisio JDN. (April, 2012). Quo: A Programmable Social Network Status Demultiplexer. Presented at the 4th Annual Undergraduate Research Symposium, Loyola Marymount University, Los Angeles, CA.

**Forney, A.** (April, 2011). The distributed self: History of the human identity and the virtual Turing test. Presentation at LMU Sigma Xi research symposium, Los Angeles, CA.

## **POSTERS**

† Njoo, L., † Barreto, M., † LaRhette, C., † Berlinberg, J., & **Forney, A.** (April, 2021). “Briefcase: Intelligent Court Transcript Management.” Presented at the 12th Annual LMU Undergraduate Research Symposium, Virtual.

† Toal, K., † Ashok, V., & **Forney, A.** (April, 2021). “Challenging Human Instinct: Dynamic Difficulty Adjustment in Video Games.” Presented at the 12th Annual LMU Undergraduate Research Symposium, Virtual.

- † Martin, B. & **Forney, A.** (April, 2021). “Measuring Human Perceptiveness in Identifying Deep Faked Images.” Presented at the 12th Annual LMU Undergraduate Research Symposium, Virtual.
- † Salman, S. & **Forney, A.** (April, 2021). “Recommender Systems in Confounded Decision-Making Scenarios.” Presented at the 12th Annual LMU Undergraduate Research Symposium, Virtual.
- † Louis, M., † Tan, M., † Mech, H., † Behrens, K., & **Forney, A.** (April, 2021). “Game Balancing via Hillclimbing in Settlers of K’tah.” Presented at the 12th Annual LMU Undergraduate Research Symposium, Virtual.
- † Toal, K., † Ashok, V. & **Forney, A.** (April, 2020). “Intent-specific Dynamic Difficulty Adjustment.” Presented at the 11th Annual LMU Undergraduate Research Symposium, Virtual.
- † West, M., **Forney, A.**, and Labrie, J. (April, 2020). “CampusGANDR: An App for Social Norm Behavioral Shaping.” Presented at the 11th Annual LMU Undergraduate Research Symposium, Virtual.
- † Alvarez, L., † Ruiz, S., & **Forney, A.** (February, 2020). “Models of Perceived Political Bias in Online News Sources.” Presented at the ACM Special Interest Group on Computer Science Education (SIGCSE-2020), Portland, OR.
- † Zapata, A. & **Forney, A.** (April, 2019). “Causal Inference in Procedural Dungeon Generation: DunGen.” Presented at the 11th Annual LMU Undergraduate Research Symposium, Los Angeles, CA.
- † Kern, B. & **Forney, A.** (November, 2019). “Improving upon Iterative Approaches for Solving Fully-Specified POMDPs.” Presented at the Southern California Conference for Undergraduate Research, San Marcos, CA.
- † Zapata, A. & **Forney, A.** (November, 2018). Causal Inference in Procedural Dungen Generation. Presented at the Southern California Conference for Undergraduate Research, Pamona, CA.
- † Alvarez, L. & **Forney, A.** (July, 2018). Bias Clustering for Online Political Articles. Presented at the 26th Annual McNair Symposium, UCLA, Los Angeles, CA.
- Forney, A.**, Bareinboim, E., & Pearl, J. (December, 2015). Bandits with Unobserved Confounders: A Causal Approach. Poster presented at the 28th Annual Conference on Neural Information Processing Systems, Montreal, Canada.

## CREATIVE WORKS & APPLICATIONS

- † Njoo, L., † Barretto, M., † LaRhette, C., † Berlinberg, J., † Ilunga, T., † Irving, A., † Marques, A., † Richardson, M., † Al Ghunaim, K., † Salman, S, Kitamura, M., & **Forney, A.** (2022). Briefcase: Intelligent Court Case Management. <<https://www.briefcaselaw.com/>>
- † Kitamura, M., Korpusik, M., & **Forney, A.** (2022). Pacman Trainer: Classroom-Ready Deep Learning from Data to Deployment. <<https://pacman.lmucs.com/>>
- † Seaman, A., † Ortiz, J., † Morgan, † N., Zietz, T., & **Forney, A.** (2022). Schedulion: NET Prediction and Scheduling for LMU Athletics. <<https://schedulion.vercel.app/>>
- † West, M., † Crowther, B., † Rajavasireddy, N., **Forney, A.**, & LaBrie, J. (2021) CampusGANDR: Peer to Peer Campus Insights. <<https://www.campusgandr.app/>>

† Louis, M., † Tan, M., † Mech, H., † Behrens, K., & **Forney, A.** (2021). Settlers of K'tah.  
<<https://github.com/mlouis2/Settlers-Of-Ktah>>

† Jay, A., † Nguyen, C., † Prochnow, S., † Santander, S., † Namba, L., † Flora, A., & **Forney, A.** (2020). USchedule:  
Scheduling System for USC+LAC Psychiatric Residents. <<https://github.com/cristalinanguyen/USchedule>>

## **DISSERTATION**

**Forney, A.** (2018). A Framework for Empirical Counterfactuals, or For All Intents, a Purpose. University of California, Los Angeles.

\* These authors contributed equally

† Student co-author / -developer

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## TEACHING EXPERIENCE

### Assistant Professor

August 2017 – Present

Loyola Marymount University (LMU)	Semesters
CMSI 185: Introductory Programming	Fall 2017
CMSI 281/2120: Data Structures	Falls 2016-2021
CMSI 282/2130: Algorithms	Springs 2019-2023, Fall 2023
CMSI 387: Operating Systems	Spring 2018
CMSI 485/3300: Artificial Intelligence	Spring 2018, Falls 2018-2021
CMSI 432/4320: Cognitive Systems Design	Springs 2019-2023

### Adjunct Professor

August 2015 – December 2016

Loyola Marymount University (LMU)	Semesters
CMSI 185: Introductory Programming	Falls 2015-2016
CMSI 281: Data Structures	Fall 2016

### Teaching Assistant

August 2013 – June 2018

University of California, Los Angeles (UCLA)	Quarters
CS 31: Introductory C++	Falls 2013-2014
CS 32: Data Structures	Winter 2014, Summers 2014-2015
CS 161: Fundamentals of Artificial Intelligence	Springs 2014-2105, Winters 2015-2016
CS 495: TA Training Seminar	Falls 2015-2016

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## ADVISING & MENTORING

### Founder/Director – LMU Applied Cognitive Technologies (ACT) Lab <<http://forns.lmu.build/act.html>>

Njoo, L., Barretto, M., LaRhette, C., Berlinberg, J., Ilunga, T., Irving, A., Marques, A., Richardson, M., Al Ghunaim, K., Salman, S., & Kitamura, M. (2019-2022). Briefcase: Intelligent Court Case Management.

Mellacheruvu, A., Scott, M., Mackin, S., Rezaey, K., & Bennett, T. (2022). Beaker: Interdisciplinary Research Connections Made Easier.

Seaman, A., Ortiz, J., Morgan, N., & Zietz, T. (2022). Schedulion: NET Prediction and Scheduling for LMU Athletics.

Martinez, E., Becker-Peral, V., & Seaman, A. (2022). Source-specific Biases and Predictors in Online Political News.

West, M., Crowther, B., Rajavasireddy, N., Moini, D., Lizarda, I., Peters, K., Simmons, M., Zafiris, S., Arteaga, & A. (2019-2021). CampusGANDR: Peer to Peer Campus Insights.

Salman, S. (2021). Recommender Systems in Confounded Decision-making Scenarios.

Nelson, S. & Hebert, S. (2021). A New Cognitive Reflection Task.

Louis, M., Tan, M., Mech, H., & Behrens, K. (2021). Settlers of K'tah.

Jay, A., Nguyen, C., Prochnow, S., Santander, S., Namba, L., & Flora, A. (2019-2020). USchedule: Scheduling System for USC+LAC Psychiatric Residents.

Utz, P. & Hayat, M. (2018). Washington Abstract.

**Faculty Mentor – LMU McNair Program**

Arceo, S. (2020). Remote Participation in Clinical Trials for Neglected Tropical Diseases.

Alvarez, L. (2018). Bias Detection for Online Political Articles.

**Faculty Advisor – LMU Summer Undergraduate Research Program (SURP)**

Njoo, L. (2020). Briefcase: Intelligent Court Case Management.

Martin, B. (2020). Documenting the Human Ability to Correctly Identify Fake Images Produced by GANs.

Njoo, L. (2019). Harmony: A Self-Harm Prevention App.

Zapata, A. (2018). Causal Inference in Procedural Dungeon Generation: Dun-Gen.

**Faculty Advisor – LMU Summer Opportunities for Advanced Research (SOAR)**

West, M. (2019). Causal Inference in the Iterated Prisoner’s Dilemma.

Ruiz, S. (2018). Bias Detection for Online Political Articles.

Neri, J. (2018). Bayesian Deep Networks for Texas-Hold’em Players with Visual Input.

**Faculty Advisor – LMU RAINS Research Awards**

Toal, K. & Ashok, V. (2019). Dynamic Difficulty Adjustment for Adversarial Games.

Njoo, L., & Baretto, M. (2019). Briefcase: Intelligent Court Case Management.

Founder/Faculty Advisor – LMU Computer Science “Bytes & Nybbles” Peer Mentorship Program	2019-Present
Research Mentor – 14 Students Mentored – LMU Honors Department	2018-Present
Faculty Advisor –Semesterly LMU Computer Science Academic Advising	2017-Present
Faculty Advisor – LMU Computer Science First-Year Orientation & Registration Program	2019-2021

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**AWARDS & HONORS**

University Intercultural Council’s Inclusive Excellence Grant (LMU)	2021
Honorable Mentor Award (LMU)	2021
Continuing Faculty Grant (LMU)	2018 & 2020
ITS Capital Grant (LMU)	2018
Computer Science Head TA (UCLA)	2015-2017
Dean’s Research Fellowship (UCLA)	2014-2015
Regent’s Research Fellowship (UCLA)	2013-2014

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## ACTIVITIES & PROFESSIONAL ASSOCIATIONS

Member – American Society for Engineering Education (ASEE)	2020-Present
Technical Advisory Board Member – Abstract < <a href="https://www.abstract.us/">https://www.abstract.us/</a> >	2018-Present
Contributor – UCLA Cognitive Systems Lab	2012-Present
Member – Association for Computing Machinery (ACM)	2011-Present
Moderator – Causality Blog < <a href="http://causality.cs.ucla.edu/blog/">http://causality.cs.ucla.edu/blog/</a> >	2017-2020
Board of Governors – Immersive Education Initiative (iED) West Coast Chapter	2012-2015

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## SERVICE & COMMUNITY PARTICIPATION

Participant – Howard Hughes Medical Institute STEM Equity Fellowship	2023
Member – CMSI Department Culture & Climate Committee	2020-Present
Faculty Co-Chair – Seaver College First-Year Advising Committee (FYAC)	2019-Present
Founder & Member – FYAC Data-Driven Insights Subcommittee	2019-Present
Reviewer – <i>Sociological Methods and Research</i> Journal	2021
Reviewer – Association for the Advancement of Artificial Intelligence	2021
Reviewer – <i>Machine Learning</i> Journal	2020
Reviewer – <i>Virtual Reality</i> Journal	2020
Member – Seaver College First-Year Advising Committee	2017-2019
Member – Seaver College Equipment and Computing Committee	2017-2018