Stanford



Alex P Pentland

Center Fellow at the Stanford Institute for Human-Centered AI

Institute for Human-Centered Artificial Intelligence (HAI)

Bio

BIO

Alex “Sandy” Pentland is HAI Center Fellow and faculty lead for digital society at Stanford HAI and Digital Economy Lab, He is Toshiba Professor at MIT, member of US National Academies, Advisor to Abu Dhabi Investment Authority Lab, and formerly advisory board member at UN Secretary General’s office, Google, ATT, Telefonica, and elsewhere. Spin-off companies and open source systems from his lab manage authentication of most digital transactions in the world, media for roughly 1B people in far east, and health resources for roughly 0.5B people in the indopacific. His current focus is on problems and opportunities in using AI to improve our social institutions.

ACADEMIC APPOINTMENTS

- Center Fellow, Institute for Human-Centered Artificial Intelligence (HAI)

HONORS AND AWARDS

- Lifetime Achievement Award, AI for Better World, MIT Alumni Association (2020)
- Keynote speaker, AI for a better society, US Academy of Engineering (Summer 2022)

LINKS

- Wikipedia Alex Pentland: https://en.m.wikipedia.org/wiki/Alex_Pentland

Research & Scholarship

PROJECTS

- Loyal Agents - Stanford, Consumer Reports
- Deliberation.io - Stanford and MIT

Teaching

STANFORD ADVISEES

Postdoctoral Faculty Sponsor

Haolun Wu

Publications

PUBLICATIONS

- **Community-centric modeling of citation dynamics explains collective citation patterns across different knowledge systems.** *Nature communications*

Kojaku, S., Mahari, R., Lera, S. C., Moro, E., Pentland, A., Ahn, Y. Y.
2026; 17 (1)

- **Evaluating Amazon effects and the limited impact of COVID-19 with purchases crowdsourced from US consumers.** *PloS one*
  Berke, A., Calacci, D., Pentland, A., Larson, K.
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- **Position: AI Agents Need Authenticated Delegation**
  South, T., Marro, S., Hardjono, T., Mahari, R., Whitney, C., Chan, A., Pentland, A.
  edited by Singh, A., Fazel, M., Hsu, D., Lacoste-Julien, S., Berkenkamp, F., Maharaj, T., Wagstaff, K., Zhu, J.
  JMLR-JOURNAL MACHINE LEARNING RESEARCH.2025: 82211-82231
- **Competition between AI foundation models: dynamics and policy recommendations** *INDUSTRIAL AND CORPORATE CHANGE*
  Schrepel, T., Pentland, A.
  2024
- **Behaviour-based dependency networks between places shape urban economic resilience.** *Nature human behaviour*
  Yabe, T., García Bulle Bueno, B., Frank, M. R., Pentland, A., Moro, E.
  2024
- **Insights from an Experiment Crowdsourcing Data from Thousands of US Amazon Users: The importance of transparency, money, and data use** *PROCEEDINGS OF THE ACM ON HUMAN COMPUTER INTERACTION*
  Berke, A., Mahari, R., Pentland, S., Larson, K., Calacci, D.
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- **Megastudy testing 25 treatments to reduce antidemocratic attitudes and partisan animosity.** *Science (New York, N.Y.)*
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  2024; 386 (6719): eadh4764
- **Toward building deliberative digital media: from subversion to consensus.** *PNAS nexus*
  Pentland, A., Tsai, L.
  2024; 3 (10): pgae407
- **A large-scale audit of dataset licensing and attribution in AI** *NATURE MACHINE INTELLIGENCE*
  Longpre, S., Mahari, R., Chen, A., Obeng-Marnu, N., Sileo, D., Brannon, W., Muennighoff, N., Khazam, N., Kabbara, J., Perisetla, K., Wu, X., Shippole, E., Bollacker, et al
  2024; 6 (8)
- **Interpretable Stochastic Block Influence Model: Measuring Social Influence Among Homophilous Communities** *IEEE TRANSACTIONS ON KNOWLEDGE AND DATA ENGINEERING*
  Leng, Y., Sowrirajan, T., Zhai, Y., Pentland, A.
  2024; 36 (2): 708-714
- **Unstoppable Wallets: Chain-assisted Threshold ECDSA and its Applications**
  Zyskind, G., Yanai, A., Pentland, A., ASSOC COMPUTING MACHINERY
  ASSOC COMPUTING MACHINERY.2024: 1844-1860
- **Network constraints on worker mobility** *NATURE CITIES*
  Frank, M. R., Moro, E., South, T., Rutherford, A., Pentland, A., Taska, B., Rahwan, I.
  2024; 1 (1)
- **Poster: zkTax: A Pragmatic Way to Support Zero-Knowledge Tax Disclosures**
  Berke, A., South, T., Mahari, R., Larson, K., Pentland, A., ACM
  ASSOC COMPUTING MACHINERY.2024: 4952-4954
- **High-Throughput Three-Party DPFs with Applications to ORAM and Digital Currencies**
  Zyskind, G., Yanai, A., Pentland, A., ACM
  ASSOC COMPUTING MACHINERY.2024: 4152-4166
- **Gift Contagion in Online Groups: Evidence from Virtual Red Packets** *MANAGEMENT SCIENCE*

Yuan, Y., Liu, T., Tan, C., Chen, Q., Pentland, A., Tang, J.
2024; 70 (7)

- **Satellite imagery and machine learning for channel member selection** *INTERNATIONAL JOURNAL OF RETAIL & DISTRIBUTION MANAGEMENT*
  Brei, V., Rech, N., Bozkaya, B., Balcisoy, S., Pentland, A., Silveira Netto, C.
  2023; 51 (11): 1552-1568
- **Flexible social inference facilitates targeted social learning when rewards are not observable.** *Nature human behaviour*
  Hawkins, R. D., Berdahl, A. M., Pentland, A. '., Tenenbaum, J. B., Goodman, N. D., Krafft, P. M.
  2023
- **Implications of COVID-19 vaccination heterogeneity in mobility networks** *COMMUNICATIONS PHYSICS*
  Yuan, Y., Jahani, E., Zhao, S., Ahn, Y., Pentland, A.
  2023; 6 (1)
- **Why voters who value democracy participate in democratic backsliding** *NATURE HUMAN BEHAVIOUR*
  Braley, A., Lenz, G. S., Adjodah, D., Rahnama, H., Pentland, A.
  2023; 7 (8): 1282-+
- **Behavioral changes during the COVID-19 pandemic decreased income diversity of urban encounters** *NATURE COMMUNICATIONS*
  Yabe, T., Bueno, B., Dong, X., Pentland, A., Moro, E.
  2023; 14 (1): 2310
- **An experimental study of tie transparency and individual perception in social networks** *PROCEEDINGS OF THE ROYAL SOCIETY A-MATHEMATICAL PHYSICAL AND ENGINEERING SCIENCES*
  Lyu, D., Teng, Y., Wang, L., Wang, X., Pentland, A.
  2022; 478 (2258)
- **Detection of Coordination Between State-Linked Actors**
  Erhardt, K., Pentland, A.
  edited by Thomson, R., Dancy, C., Pyke, A.
  SPRINGER INTERNATIONAL PUBLISHING AG.2022: 144-154
- **Screening Diabetic Retinopathy Using an Automated Retinal Image Analysis System in Independent and Assistive Use Cases in Mexico: Randomized Controlled Trial** *JMIR FORMATIVE RESEARCH*
  Noriega, A., Meizner, D., Camacho, D., Enciso, J., Quiroz-Mercado, H., Morales-Canton, V., Almaatouq, A., Pentland, A.
  2021; 5 (8): e25290
- **Mobility patterns are associated with experienced income segregation in large US cities** *NATURE COMMUNICATIONS*
  Moro, E., Calacci, D., Dong, X., Pentland, A.
  2021; 12 (1): 4633
- **Secure and secret cooperation in robot swarms** *SCIENCE ROBOTICS*
  Ferrer, E., Hardjono, T., Pentland, A., Dorigo, M.
  2021; 6 (56)
- **Accuracy-Risk Trade-Off Due to Social Learning in Crowd-Sourced Financial Predictions** *ENTROPY*
  Adjodah, D., Leng, Y., Chong, S., Krafft, P. M., Moro, E., Pentland, A.
  2021; 23 (7)
- **Effect of COVID-19 response policies on walking behavior in US cities** *NATURE COMMUNICATIONS*
  Hunter, R. F., Garcia, L., de Sa, T., Zapata-Diomedi, B., Millett, C., Woodcock, J., Pentland, A., Moro, E.
  2021; 12 (1): 3652
- **Housing Prices and the Skills Composition of Neighborhoods** *FRONTIERS IN BIG DATA*
  Althobaiti, S., Alghumayjan, S., Frank, M. R., Moro, E., Alabdulkareem, A., Pentland, A.
  2021; 4: 652153
- **The Strength of Structural Diversity in Online Social Networks** *RESEARCH*
  Zhang, Y., Wang, L., Zhu, J. J. H., Wang, X., Pentland, A.

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- **COVID-19 policy analysis: labour structure dictates lockdown mobility behaviour** *JOURNAL OF THE ROYAL SOCIETY INTERFACE*
  Heroy, S., Loaiza, I., Pentland, A., O'Clery, N.
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- **Universal resilience patterns in labor markets.** *Nature communications*
  Moro, E., Frank, M. R., Pentland, A., Rutherford, A., Cebrian, M., Rahwan, I.
  2021; 12 (1): 1972

- **Spillovers across industries and regions in China's regional economic diversification** *REGIONAL STUDIES*
  Gao, J., Jun, B., Pentland, A., Zhou, T., Hidalgo, C. A.
  2021; 55 (7): 1311-1326

- **Prediction and prevention of disproportionally dominant agents in complex networks** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Lera, S., Pentland, A., Sornette, D.
  2020; 117 (44): 27090-27095

- **Looking for a better future: modeling migrant mobility** *APPLIED NETWORK SCIENCE*
  Saa, I., Novak, M., Morales, A. J., Pentland, A.
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- **Contextualizing Human Psychology** *TECHNOLOGY, MIND, AND BEHAVIOR*
  Pentland, A.
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- **Measuring the predictability of life outcomes with a scientific mass collaboration.** *Proceedings of the National Academy of Sciences of the United States of America*
  Salganik, M. J., Lundberg, I., Kindel, A. T., Ahearn, C. E., Al-Ghoneim, K., Almaatouq, A., Altschul, D. M., Brand, J. E., Carnegie, N. B., Compton, R. J., Datta, D., Davidson, T., Filippova, et al
  2020

- **An Amazon stingless bee foraging activity predicted using recurrent artificial neural networks and attribute selection** *SCIENTIFIC REPORTS*
  Gomes, P. A. B., Suhara, Y., Nunes-Silva, P., Costa, L., Arruda, H., Venturieri, G., Imperatriz-Fonseca, V., Pentland, A., de Souza, P., Pessin, G.
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- **Computational social science: Obstacles and opportunities.** *Science (New York, N.Y.)*
  Lazer, D. M., Pentland, A. n., Watts, D. J., Aral, S. n., Athey, S. n., Contractor, N. n., Freelon, D. n., Gonzalez-Bailon, S. n., King, G. n., Margetts, H. n., Nelson, A. n., Salganik, M. J., Strohmaier, et al
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- **Segregation and polarization in urban areas** *ROYAL SOCIETY OPEN SCIENCE*
  Morales, A. J., Dong, X., Bar-Yam, Y., Pentland, A.
  2019; 6 (10): 190573

- **BLOCKCHAIN TECHNOLOGIES AND APPLICATIONS** *CHINA COMMUNICATIONS*
  Liu, E., Pentland, A., Adamson, G., Ramadoss, R., Yang, Y., Tsai, W., Zhao, Y., Lei, M.
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- **Machine behaviour** *NATURE*
  Rahwan, I., Cebrian, M., Obradovich, N., Bongard, J., Bonnefon, J., Breazeal, C., Crandall, J. W., Christakis, N. A., Couzin, I. D., Jackson, M. O., Jennings, N. R., Kamar, E., Kloumann, et al
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- **THE RISE OF DECENTRALIZED PERSONAL DATA MARKETS** *TRUSTED DATA: A NEW FRAMEWORK FOR IDENTITY AND DATA SHARING*
  Staiano, J., Zyskind, G., Lepri, B., Oliver, N., Pentland, A.
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  2019: 155-166

- **An interpretable approach for social network formation among heterogeneous agents** *NATURE COMMUNICATIONS*
  Yuan, Y., Alabdulkareem, A., Pentland, A.
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- **Breaking the Bank.** *Scientific American*
  Lipton, A., Pentland, A. S.
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- **Behavioral Indicators on a Mobile Sensing Platform Predict Clinically Validated Psychiatric Symptoms of Mood and Anxiety Disorders** *JOURNAL OF MEDICAL INTERNET RESEARCH*
  Place, S., Blanch-Hartigan, D., Rubin, C., Gorrostieta, C., Mead, C., Kane, J., Marx, B. P., Feast, J., Deckersbach, T., Pentland, A., Nierenberg, A., Azarbayejani, A.
  2017; 19 (3): e75

- **Enigma: Decentralized Computation Platform with Guaranteed Privacy** *NEW SOLUTIONS FOR CYBERSECURITY*
  Zyskind, G., Pentland, A.
  edited by Shrobe, H., Shrier, D., Pentland, A.
  2017: 425-454

- **bandicoot: a Python Toolbox for Mobile Phone Metadata** *JOURNAL OF MACHINE LEARNING RESEARCH*
  de Montjoye, Y., Rocher, L., Pentland, A.
  2016; 17

- **Keynote: Building a Nervous System for Society: The 'New Deal on Data' and How to Make Health, Financial, Logistics, and Transportation Systems Work**
  Pentland, A.
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