DAN E. KRANE

Professor of Biological Sciences

CURRENT LEADERSHIP POSITIONS

Chair, Ohio Faculty Council (2012-present)

The Ohio Faculty Council speaks on behalf of approximately 30,000 faculty at all of the 14 public four-year universities in Ohio. Chair responsibilities include: leading strategic planning exercises, championing the launch of a statewide technology commercialization award for Ohio faculty, writing op-ed pieces and white papers, interfacing with state-level union officials and university administrations, and testifying before legislative committees.

College of Science and Mathematics Representative, Faculty Senate Executive Committee (2015-present)

Responsibilities include: Representing the interests of CoSM faculty in the Senate and distributing shared governance information to constituents, leading the caucus of six CoSM Senators, identifying CoSM faculty to staff Senate and University committees, and providing a clear faculty voice in the creation of University policy, curriculum and programs.

Chair, Task Force on Affordability and Efficiency, Wright State (2016-present)

Responsibilities include: Oversee and coordinate Wright State University's compliance with legislative initiatives including: program collaboration, cost-saving measures, means of effective use of resources, evaluation of university assets, and transition to 120 credit hour degrees for all academic programs.

President and CEO, Forensic Bioinformatics, Inc. (2002-present)

Responsibilities include: Capitalization, launch, and oversight of all aspects of a privately held start-up company with $500,000 a year in revenue that is based on university-owned intellectual property. Perform comprehensive reviews of DNA test results from hundreds of typically high-profile criminal cases a year from around the world. Supervise a diverse team of computer and biological scientists.

PAST LEADERSHIP POSITIONS

Faculty Senate President, Wright State University (2011-2014)

Responsibilities included: Doing what is best for faculty (and their students); develop strategies in a collaborative, communicative way followed by execution and delivery; assemble and monitor the activities of diverse teams of faculty, staff and administrators; regularly attend University Cabinet and Council of Deans meetings; represent Faculty interests at quarterly Board of Trustee meetings; preside over university ceremonies such as Commencements and Convocations.

Accomplishments included: Facilitating the transition from quarters to semesters; design and construction of Wright State's new classroom building; creation and launch of a coordinated student success strategy; reorganization of university curriculum committees; launch of an annual Faculty/Staff-appreciation celebration; creation of a new chief information officer position at the vice president level.

Fellow, American Council on Education; President's and the Vice President for Research's Offices, University of Notre Dame (2014-2015)

Responsibilities included: Identify the advantages and pitfalls of a possible Notre Dame Research Institute; meet regularly with senior administrators; facilitate enhancement of an entrepreneurial culture among faculty and students.

Accomplishments included: Established framework for a Notre Dame Research Institute that would allow the university to participate in classified projects and translational research with industry partners.

Special Assistant for Completion Initiatives, Ohio Department of Higher Education (a Cabinet-level agency for the Governor of Ohio) (2016)

Responsibilities included: Engage higher education faculty, advisors and administrators at all of Ohio's public two- and four-year colleges and universities to adopt innovative curricula that will better prepare students for tomorrow's economy; develop and administer an RFP that encourages institutions to link redesigned math courses and degree pathways as well as pilot co-requisite strategies for remediation.

EDUCATION

Ph.D. (1990) Biochemistry program of the Department of Molecular and Cell Biology, The Pennsylvania State University
B.S. (1985) in Biology and Chemistry, John Carroll University

ACADEMIC POSITIONS

Professor, Department of Biological Sciences, Wright State University (2007-present)
Affiliate Professor, Department of Computer Science, Wright State University (2012-present)
Associate Professor, Department of Biological Sciences, Wright State University (2000-2007)
Assistant Professor, Department of Biological Sciences, Wright State University (1993-2000)
Research Associate, Department of Organismic and Evolutionary Biology, Harvard University (1991-1993)
Research Associate, Department of Genetics, Washington University School of Medicine (1990-1991)

RECOGNITION AND AWARDS

Teacher of the Year, College of Science and Mathematics, Wright State University (1995, 1997 and 2008)
Honorary Inductee, Alpha Lambda Delta, National Academic Honor Society for Freshmen, Wright State University chapter (1996)
Honorious Causa Member, Omnicron Delta Kappa, National Leadership Honorary Society, Wright State University Circle (2012)
Fellow, American Council on Education (2014-2015)

SELECTED FUNDED RESEARCH PROPOSALS

Co-Investigator, U.S. EPA grant for $61,814 for "Assessment of sediment quality in the Black River" (G. Allen Burton, project director) (1997)
Co-Investigator, U.S. EPA grant for $449,499 for "Sediment contamination assessment methods: Validation of standardized and novel approaches" (G. Allen Burton, project director) (1997)
Principle Investigator, U.S. EPA grant for $420,277 for "Intraspecies genetic diversity measures of environmental impacts: (1998-2002)
Principle Investigator, Wright State University Technology Commercialization Initiative Grant for $99,985 for "Commercialization of DNA profiling expertise" (2001-2002)
Co-Investigator, National Science Foundation (Computer Science Directorate) grant for $524,056 for "Crossing the interdisciplinary barrier: An integrated undergraduate program in bioinformatics" (Mike Raymer, PI) (2001-2005)
Co-Investigator, State of Ohio Biotechnology Research and Technology Transfer grant for $5.5 million ($1.9 million to Wright State University; $600,293 for bioinformatics work) (2002-2005)
Principle Investigator, Research Initiative Grant from Forensic Bioinformatics, Inc. for $55,338 for "Persistence and transfer of STR DNA profiles" (2010-2012)
Project Leader, Helmsley Charitable Trust grant to the Ohio Department of Higher Education for $750,000 for "Bridges to Success: Co-remediation at scale" (2017)

PEER REVIEWED RESEARCH PUBLICATIONS AND BOOK CHAPTERS (SINCE 2009)

[36] Raiford, D. W., E. M. Heizer, Miller, R. V., Akashi, H., Raymer, M. L. and D. E. Krane. 2009. Do amino acid biosynthesis costs constrain protein evolution in *Saccharomyces cerevisiae*? Journal of Molecular Evolution, **67**:621-630, 2008.

[37] Krane, D. E. Allelic Attribution, in Wiley Encyclopedia of Forensic Science (A. Jamieson & Moenssens eds.). 2009.

[38] Krane, D. E. Low amounts of DNA, in Wiley Encyclopedia of Forensic Science (A. Jamieson & Moenssens eds.). 2009.

[39] Gilder, J., Koppl, I. Kornfield, D. Krane, L. Mueller, W.C. Thompson. 2009. Comments on the review of low copy number testing. International Journal of Legal Medicine. **123**(6):535-536.

[40] Krane, D. E., S. Ford, J. R. Gilder, K. Inman, A. Jamieson, R. Koppl, I. L. Kornfield, D. M. Risinger, N. Rudin, M. S. Taylor, W. C. Thompson. 2009. Comments on sequential unmasking: A means of minimizing observer effects in forensic DNA interpretation. Journal of Forensic Sciences, **54**(2):501.

[41] Krane, D. E., S. Ford, J. R. Gilder, K. Inman, A. Jamieson, R. Koppl, I. L. Kornfield, D. M. Risinger, N. Rudin, M. S. Taylor, W. C. Thompson. 2009. Comments on sequential unmasking: A means of minimizing observer effects in forensic DNA interpretation. Journal of Forensic Sciences, **54**(6):1500-1501.

[42] Krane, D. E., V. Bahn, D. Balding, B. Barlow, H. Cash, B.L. Desportes, P. D'Eustachio, K. Devlin, T. E. Doom, I. Dror, S. Ford, C. Funk, J. Gilder, G. Hampikian,

K. Inman, A. Jamieson, P. E. Kent, R. Koppl, I. Kornfield, S. Krimsky, J. Mnookin, L. Mueller, E. Murphy, D. R. Paoletti, D.A. Petrov, M. Raymer, D. M. Risinger, A. Roth, N. Rudin, W. Shields, J.A. Siegel, M. Slatkin, Y. S. Song, T. Speed, C. Spiegelman, P. Sullivan, A. R. Swienton, T. Tarpey, W. C. Thompson, E. Ungvarsky, S. Zabell. 2009. Time for DNA disclosure. Science, **326**:1631-1632.

[43] Krane, D., S. Ford, J. Gilder, K. Inman, A. Jamieson, R. Koppl, I. Kornfield, D.M. Risinger, N. Rudin, M. Taylor, W.C. Thompson. 2010. Commentary on: "A perspective on errors, bias, and interpretation in the forensic sciences and direction for continuing advancement." Journal of Forensic Sciences, **55**(1):273-274.

[44] Raiford, D. W., D. E. Krane, T. E. Doom and M. L. Raymer. 2010. Automated isolation of translational efficiency bias that resists the confounding effect of GC(AT)-content. IEEE/ACM Transactions on Computational Biology and Bioinformatics, **7**(2):238-250.

[45] Thompson, W., Ford, S., Gilder, J., Inman, K., Jamieson, A., Koppl, R., Kornfield, I., Krane, D., Mnookin, J., Risinger, D., Rudin, N., Saks, M., and S. Zabell. 2010 A reply to Thornton's "A rejection of 'working blind' as a cure for contextual bias." Journal of Forensic Sciences, **55**(6): 1663.

[46] Gilder, J. R., K. Inman, W. Shields and D. E. Krane. 2011. Magnitude dependent variation in peak height balance at heterozygous STR loci. International Journal of Legal Medicine, **125**(1): 87-94.

[47] Raiford, D. W., D. E. Krane, T. E. Doom and M. L. Raymer. 2011. A genetic optimization approach for isolating translational efficiency bias. IEEE/ACM Transactions on Bioinformatics and Computational Biology (TCBB), **8**:342-352.

[48] Heizer, E. M., Raymer, M. L., and D. E. Krane. 2011. Amino acid biosynthetic cost and protein conservation. Journal of Molecular Evolution, **72**(5-6): 466-473.

[49] Paoletti, D. R., D. E. Krane, M. L. Raymer and T. E. Doom. 2012. Inferring the number of contributors to mixed DNA profiles. IEEE/ACM Transactions on Computational Biology and Bioinformatics, **9**(1): 113-122.

[50] Raiford, D. W., E. M. Heizer, R. V. Miller, T. E. Doom, M. L. Raymer and D. E. Krane. 2012. Metabolic and translational efficiency in microbial organisms. Journal of Molecular Evolution, **74**(3-4): 206-216.

[51] Thompson, W. C., L. D. Mueller, and D. E. Krane. 2012. Forensic DNA statistics: Still controversial in some cases. The Champion, 2012 **13**(9): 14-23.

[52] Ferguson, C. D., M. J. Blum and M. L. Raymer, M. S. Eackles, and D. E. Krane. 2013. Population structure, multiple paternity, and long-distance transport of spermatozoa in the freshwater mussel *Lampsilis cardium* (Bivalvia: Unionidae). Freshwater Science, **32**(1):267-282.

[53] Koppl, R., and D. Krane. 2015. "Minimizing *and* leveraging bias in forensic science" in Chris Robertson's *Blinding as a solution to institutional corruption,* Harvard University Press, Cambridge, MA (in press).

[54] Dror, I. E., W. C. Thompson, C. A. Meissner, I. Kornfield, D. Krane, M. Saks, and M. Risinger. 2015. Context management toolbox: A linear sequential unmasking (LSU) approach for minimizing cognitive bias in forensic decision making. Journal of Forensic Sciences, **60**(4):1111-1112.

[55] Koppl, R., D. Charlton, I. Kornfield, D. Krane, D. M. Risinger, C. T. Robertson, M. Saks, and W. Thompson. 2015. Do observer effects matter? Forensic Science Policy & Management: An International Journal, **6:**1-2.

[56] Krane, D. 2015. Time for DNA database disclosure. Journal of Forensic Sciences, **60**:1668.

[57] Krane, D. "DNA Mixture Interpretation." In *A Guide to Forensic DNA Profiling*, (Allan Jamieson and Scott Bader eds.) published by JW Wiley. Pages 129-136. March, 2016.

[58] Krane, D. E. and Ford, S. "Essential Elements of a Critical Review of DNA Evidence." In *Forensic Science Reform*, (Wendy Koen and C. Michael Bowers eds.) published by JW Wiley. Pages 211-238. January, 2017.

TEXTBOOKS

Krane, D. E. and M. L. Raymer. 2003. *Fundamental Concepts of Bioinformatics*. (A 314 page sophomore/ junior level textbook for biology and computer science majors; ISBN 0-8053-4633-3) Pearson Education, Inc., San Francisco, CA. (International edition ISBN 0-321-10922-X; Chinese translation ISBN 7-302-09430-6/Q)

CERTIFICATIONS

Recipient of Society for College and University Planning (SCUP) Institute's certificate of completion for Planning Institute 1, 2 and 3 (2015)

SELECTED PROFESSIONAL SERVICE

Court recognized expert in forensic DNA profiling in over 110 criminal trials since 1991 with in-court testimony in 23 different states, five federal courts, four courts martial, Australia, Northern Ireland and England.
State Representative, Complete College America (2016-present).
Co-chair, Ohio Board of Regents Faculty Credentials Committee (2012).
Chair, University Athletics Council, Wright State University (2009-2011).
Speaker, TEDx Dayton, "Exploring Bias in Forensic DNA Profiling" (2014).
National Event Supervisor (Forensic Science), Science Olympiad, Wright State University (2013).
Presenter, A series of eight 50-minute long videos on forensic DNA profiling available on-line for continuing legal education (CLE) credit and used for flipped undergraduate classes (available at: bioforensics.com/videos/) (2013).
Gubernatorial appointee, Forensic Chemistry Representative to the Scientific Advisory Committee for the Virginia Department of Forensic Science. (Appointed by Governor Mark Warner for a term of 2005-2006; reappointed by Governor Tim Kaine for a term of 2006 to 2010).