

## Jun Otsuka (大塚 淳)

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## Employment

Associate Professor, Philosophy Department, Kyoto University, April 2017 - Present.

Associate Professor, Philosophy Department, Kobe University, April 2015 - March 2017.

Postdoctoral Fellow (PI: Prof. James Griesemer), Philosophy Department, University of California, Davis, June 2013 - February 2015.

Research Assistant, The Indiana Philosophy Ontology project (PI: Prof. Colin Allen), Indiana University, September 2012 - May 2013.

Teaching Assistant, Introduction to Statistical Theory (Prof. Guilherme Rocha), Indiana University, Spring 2011.

Teaching Assistant, Introduction to Applied Statistics (Prof. William Wyatt), Indiana University, Fall 2010.

## Adjunct/visiting positions

Specially Appointed Associate Professor, Data Science and AI Innovation Research Promotion Center, Shiga University, Japan, June 2024 - Present.

Visiting Researcher, Causal Inference Team, Center for Advanced Integrated Intelligence Research, RIKEN, Japan, November 2018 - Present.

## Education

### Indiana University

**Ph.D. in History and Philosophy of Science**, 2014

Thesis title: The Causal Structure of Evolutionary Theory

Committee: Elisabeth Lloyd, Michael Wade, Colin Allen, Amit Hager, Clark Glymour

**M.S. in Applied Statistics**, 2014

### Kyoto University

**Ph.D. in Philosophy**, 2011

Thesis title: 目的論の歴史と理論 (The History and Theory of Teleology)

Committee: Kunitake Ito, Yasuo Deguchi, Shigeru Fukutani

**M.A. in Philosophy**, 2005

**B.A. in Philosophy**, 2003

## Research Interests

**Areas of Specialization:** Philosophy of Science, Philosophy of Biology, Philosophy of Statistics and Machine Learning

**Areas of Competence:** Formal Philosophy, Modern Philosophy, Digital Humanities

## Publications

### Books

1. Otsuka, J. (2023). *Thinking About Statistics: The Philosophical Foundations*, Routledge. (English translation of 『統計学を哲学する』)  
Preview PDF (Table of Contents & Introduction)  
Book symposium at Asian Journal of Philosophy, featuring reviews by Hanti Lin, Jeanne Peijnenburg & David Atkinson, Elliott Sober, and Tung-Ying Wu.  
Book symposium at APA Pacific, San Francisco (2025 April 18).
2. 大塚淳 (2020). 統計学を哲学する, 名古屋大学出版局.  
Reviewed in: 読売新聞, 経済セミナー, 『みすず』 (2021年1/2月号併合, 2022年1/2月号併合), 科学基礎論研究, 科学哲学, 統計.  
「紀伊國屋じんぶん大賞2021」8位  
『週刊ダイヤモンド』 (2021年12月25日・2022年1月1日合併号、特集「経済学者・経営学者・エコノミスト128人が選んだ2021年『ベスト経済書』」25位
3. Otsuka, J. (2019). *The Role of Mathematics in Evolutionary Theory*, Cambridge University Press.  
Reviewed in: Trends in Ecology & Evolution, 科学哲学

## Refereed or Invited Articles

### Evolutionary Biology

1. Lehtonen, J. and Otsuka, J. (2023). Evolutionary game theory of continuous traits from a causal perspective. *Philosophical Transactions of the Royal Society B*, 378: 20210507. <https://doi.org/10.1098/rstb.2021.0507>
2. Edelaar, P., Otsuka, J., and Luque, V. (2022). A generalised approach to the study and understanding of adaptive evolution. *Biological Reviews*, 98(1): 352-375.
3. Okasha, S., Otsuka, J. (2020). The Price equation and the causal analysis of evolutionary change, *Philosophical Transactions of the Royal Society B*, 375: 20190365. <https://doi.org/10.1098/rstb.2019.0365>

4. Otsuka, J. (2019). Species as Models, *Philosophy of Science*, 86(5): 1075-1086
5. Otsuka, J. (2019). Ontology, Causality, and Methodology of Evolutionary Research Programs, in *Evolutionary Causation: Biological and Philosophical Reflections*, Uller, T. and Laland, K eds, The MIT Press, 247-264.
6. Otsuka, J. (2017). The causal homology concept, *Philosophy of Science*, 84(5): 1128-1139.
7. Otsuka, J. (2016). Discovering phenotypic causal structure from nonexperimental data, *Journal of Evolutionary Biology*, 29(6): 1268-1277.
8. Otsuka, J. (2016). A critical review of the statisticalist debate, *Biology and Philosophy*, 31(4): 459-482.
9. Otsuka, J. (2016). Causal Foundations of Evolutionary Genetics, *The British Journal for the Philosophy of Science*, 67 (1): 247-269.
10. Otsuka, J. (2015). Using Causal Models to Integrate Proximate and Ultimate Causation, *Biology and Philosophy*, 30(1): 19-37.
11. Otsuka, J., Turner, T., Lloyd, E.A., Allen, C. (2011). Why the Causal View of Fitness Survives, *Philosophy of Science*, 78: 209-224.
12. 大塚淳 (2007). 結局、機能とは何だったのか (Reconciling Two Concepts of Function), 『科学哲学』, 40(1): 29-41.

### Statistics, Causality, and Machine Learning

1. Otsuka, J. (under review). Bridging the Gap Between Statistics and Philosophy.
2. Otsuka, J. (under review). What Machine Learning Tells Us About the Mathematical Structure of Concepts.
3. Otsuka, J., Hayashi, T., Yoshii, T., Saigo, H. (under review). Modeling Causal Processes.
4. Taniguchi, T., Takagi, S., Otsuka, J., Hayashi, Y., Hamada, H. T. (accepted) Collective Predictive Coding as Model of Science: Formalizing Scientific Activities Towards Generative Science, *Royal Society Open Science*.
5. Otsuka, J. (2025) *Precis of Thinking About Statistics*. *Asian Journal of Philosophy*, 4:40.
6. Otsuka, J. (2025) Replies to Critics. *Asian Journal of Philosophy*, 4:36.
7. 大塚淳 (2025) AI 駆動科学がもたらす科学的理念への影響 (The Impact of AI-Driven Science on Scientific Ideals). 『人工知能』 40(2), 119-126.
8. Yoshii, T. and Otsuka, J. (accepted). A Categorical Solution to the Grue Paradox. *The British Journal for the Philosophy of Science*.
9. 大塚淳 (2023) 深層学習後の科学のあり方を考える, 鈴木貴之編著『人工知能とどうつきあうか: 哲学から考える』収録, 勁草書房.
10. Otsuka, J. and Saigo, H. (2023). Process theory of causality: A category-theoretic perspective. *Behaviormetrika*, <https://doi.org/10.1007/s41237-023-00197-z>

11. Otsuka, J. and Saigo, H. (2022). On the Equivalence of Causal Models: A Category-Theoretic Approach. *Proceedings of the First Conference on Causal Learning and Reasoning*, PMLR 177:634-646.
12. 大塚淳 (2021). 統計学と機械学習から見る「正当化」のあり方 (Justification in statistics and machine learning), 『アステイオン』, 95: 163-175.
13. 大塚淳 (2021). 統計学はなぜ哲学の問題になるのか (Why does statistics matter to philosophy?), 『哲学研究』, 606: 1-24.
14. Otsuka, J. (2020). Ockham's Proportionality: A Model Selection Criterion for Levels of Explanation. in *Risks and Regulation of New Technologies*, Matsuda, T., Wolff, J. and Yanagawa, T. eds, Springer, pp. 47-64.
15. 田口茂, 大塚淳, 西郷甲矢人 (2020). 現象学的明証論と統計学—経験の基本的構造を求めて (The phenomenological *Evidenzlehre* and statistics: in search of the fundamental structure of experience), 『哲学論叢』, 47: 20-34.
16. 大塚淳 (2019). 生命と人工知能におけるデザイン問題 (Design problems in life and AI), 『科学基礎論研究』, 46(2): 21-27.
17. 大塚淳 (2010). ベイズネットから見た因果と確率 (Causality and Probability – A View from Bayesian Networks), 『科学基礎論研究』, 38(1): 39-47.

## Others

1. 西郷甲矢人, 大塚淳, 北島雄一郎, 田口茂 (2022). 「哲学者たちと語る圏論」, 『圏論の地平線』 (西郷甲矢人編), 315-348.
2. Kato, T., Kudo, Y., Miyakoshi, J., Otsuka J., Saigo, H., Karasawa, K., Yamaguchi, H., and Deguchi. Y. (2020). Rational Choice Hypothesis as X-point of Utility Function and Norm Function, *Applied Economics and Finance* 7(4): 65-77.
3. Kato, T., Kudo, Y., Miyakoshi, J., Otsuka J., Saigo, H., Karasawa, K., Yamaguchi, H., Hiroi, Y., and Deguchi. Y. (2020). Sustainability and Fairness Simulations Based on Decision-Making Model of Utility Function and Norm Function, *Applied Economics and Finance* 7(3): 96-114.
4. Murdock, J., Allen, C., Borner, K., Light, R., McAlister, S., Ravenscroft, A., Rose, R., Rose, D., Otsuka, J., Bourget, D., Lawrence J., Reed, C. (2017). Multi-level computational methods for interdisciplinary research in the HathiTrust Digital Library, *PLoS ONE* 12(9): e0184188.
5. 大塚淳 (2008). 二つの目的論：スピノザの目的原因論批判をめぐって (Two sorts of teleology: Spinoza's critique on final causation), 『哲学』, 59: 115-130.
6. 大塚淳 (2005). スピノザ『エチカ』における目的論とコナトゥス (Téléologie et Conatus dans l'Étique de Spinoza), 『哲学論叢』, 32:24-35.

## Non-refereed Articles and Technical Reports

1. 大塚淳 (2020). 現代の科学哲学からみたアリストテレス (Aristotle in today's philosophy of science), 『アリストテレス全集第 11 巻 動物の発生について』月報, 1-3. 岩波書店.
2. 大塚淳 (2017). 科学哲学から見た人文系メタ科学の可能性 (Perspectives on the meta-scientific analysis of humanities), 『21 世紀倫理創成研究』, 10: 23-35.
3. 大塚淳 (2010). 生物学における目的と機能 (Teleology and Functions in Biology), 『進化論はなぜ哲学の問題になるのか』, 松本俊吉編集, 53-74, 勁草書房.
4. 大塚淳 (2010). 普遍生物学と生物学的法則: Stuart Kauffman の自己組織化理論とその手法の検討 (Universal Biology and Biological Law: Comments on Stuart Kauffman's Theory and Methods on Self-organization), 『実証段階におけるカオス研究の哲学的考察』(平成 16・17 年度科学研究費補助金 (基盤研究 (C)(2)) 研究課題番号 16520017) .
5. 大塚淳 (2008). 哲学者のためのベイジアンネットワーク入門 (A philosopher's Guide to Bayesian Networks), 『哲学論叢』, 35:106- 107.
6. 大塚淳 (2007). 人工生命からシステム生物学へ (From A-Life to Systems Biology), Prospectus, 10:58-6
7. 大塚淳 (2006). 生物学における機能説明 (Functional Explanations in Biology), 『哲学論叢』, 33:114-125.

## Book Reviews

1. 大塚淳 (2013). エリオット・ソーバー 『科学と証拠:統計の哲学入門』書評 (Review of E. Sober, *Evidence and Evolution*), 『科学哲学』, 46(2): 60-64.
2. 大塚淳 (2012). 因果と実在, Judea Pearl, Causality 第二版書評 (Review of J. Pearl, *Causality*, 2nd ed.), 『科学基礎論研究』, 39(2): 59-65.
3. 大塚淳 (2011). 証拠と推論の哲学: E. Sober, Evidence and Evolution 書評 (Review of E. Sober, *Evidence and Evolution*), 『生物科学』, 63(1): 55-60.

## Translation

1. 太田紘史, 大塚淳, 田中泉吏, 中尾央, 西村正秀, 藤川直也訳 (2009). セックス・アンド・デスー生物学の哲学への招待』, 春秋社 (Japanese translation of Sterelny, K. and P. E. Griffiths. (1999). *Sex and Death – An Introduction to Philosophy of Biology*)

## Talks

\*: invited

## Upcoming

6/12 TBA, ISS Analytical Philosophy Workshop, University of Tokyo.

6/17-19 \*Modeling causal processes with string diagrams, the 11th Biennial Meeting of the Asia-Pacific Philosophy of Science Association, National Yang Ming Chiao Tung University, Taipei.

6/21 TBA, Japan Association for Philosophy of Science, Tohoku University.

## 2025

- 4/18 \*Precis of Thinking About Statistics and Replies to Critics, Book Symposium: Jun Otsuka, *Thinking About Statistics*, APA Pacific, San Francisco.
- 3/27 \*Algebraic and Geometrical Structures of Concepts, Philosophy of AI in Asia Workshop, the University of Hong Kong.
- 3/14 \*哲学から統計の「意味」を考える, 基盤医学特論, 名古屋大学.
- 1/11 (with Tatsuya Yoshii and Hayato Saigo) A sheaf-theoretic reconstruction of statistical models, 2025 Joint Mathematics Meetings, Seattle.
- 1/11 統計学の哲学再考: 伊庭先生に叱られて考えたこと, 学際領域の開拓と探求: 統計物理・データ科学・MCMC, オンライン

## 2024

- 12/19 Statistics and Scientific Justification: A Philosophical Exploration, Seoul National University.
- 12/18 Thinking About Statistics II: Ontological implications of model selection, machine learning, and causal inference, Seoul National University.
- 12/17 Thinking About Statistics I: Bridging the gap between statistics and epistemology, Seoul National University.
- 12/2 From Aristotle to Galileo, and Back?, AI x Physics x Philosophy, Kyoto University
- 12/1 哲学から考える AI の「知性」と信頼性, 日本科学哲学会ワークショップ「AI から考える言語・知性・科学」, 関西大学
- 11/20-21 \*Changing Ideals of Science in the Age of AI, Artificial Intelligence and the Future of Science, Lingnan University, Hong Kong AR.
- 11/6 \*因果プロセスの圏論的モデリング, 因果推論研究の最先端, 愛媛大学
- 11/3 \*哲学者と語る因果推論の本質, 第7回日本臨床疫学会, 早稲田大学- 10/30 \*Changing Ideals of Science in the Age of AI, CIVICA Data Science Seminar Series, online.
- 10/26 From Confirmation to Generation: Rethinking Science through Collective Predictive Coding, 科学基礎論学会秋の研究例会, オンライン
- 8/8 \*概念の数理的モデリングに向けて: 機械学習の知見から ver. 2, 第3回「仮説創出」議論会, 京都大学理学部.
- 6/27 Bridging the Gap Between Statistics and Epistemology, Philosophy of Science and Epistemology, Hong Kong University of Science and Technology.
- 5/25 \*Changing Ideals of Science in the Age of AI, Japanese-French Frontiers of Science Symposium, Strasbourg.
- 5/21 Why Use Statistics? Objectivity and Justification in Science, Centre d'analyse et de mathématique sociales, EHESS, Paris.
- 3/27 \*概念の数理的モデリングに向けて: 機械学習の知見から, 第2回「仮説創出」議論会, 京都大学理学部.
- 3/1 \*AI時代の科学を考える, ゲンロン.

2/19 \*因果性：関係かプロセスか？、「因果とは何かー哲学・数学・物理から考える」, 東北大学数理科学共創社会センター.

## 2023

12/3 深層学習後の科学を考える, 第56回日本科学哲学会, 筑波大学

11/11 (with Yusaku Ohkubo) Frequentist predictionalism: the role of model selection criterion and its ontology, PSA Around the World, online.

9/14 Bridging the Gap between Statistics and Epistemology, Theory and Method in Biosciences seminar, The University of Sydney.

9/3 \*AI以降の科学を考える, 統計連合学会市民講演会, 京都大学

7/21 Toward an AI Epistemology, 10th Biennial Meeting of the Asia-Pacific Philosophy of Science Association, VinUniversity, Hanoi.

7/6 \*Why Use Statistics? Objectivity and Justification in Science, Normative Measurements and Social Science, University of Tokyo.

6/26 Process Theory of Causality and the Causal Markov Condition, Causation in Kyoto, Kyoto University.

6/11 Process Theory of Causality and the Causal Markov Condition, 科学基礎論学会, 東海大学.

4/27 \*What Machine Learning Tells Us About the Mathematical Structures of Concepts, PCFS Seminar Series, Lingnan University.

3/30 \*深層学習後の科学のあり方を考える, 「諸科学における統計思考」 統数研共同研究集会.

## 2022

12/2 哲学者のための数学, 科学哲学会サテライトイベント, 名古屋大学.

11/11 What Machine Learning Tells Us About the Mathematical Structures of Concepts (Poster presentation), PSA 2022, Pittsburgh, PA.

6/18 概念の数理モデルを目指して：表現学習を手引きとして, 科学基礎論学会.

4/11 (with Hayato Saigo) On the Equivalence of Causal Models: A Category-Theoretic Approach (Poster presentation), CLear 2022.

3/9 概念とは何か？哲学／機械学習からのアプローチ, 概念モデルに関する研究会・公開ミーティング, 哲学オンラインセミナー

3/4 \*Three Faces of Causality, International Workshop on Causality and Philosophy.

## 2021

12/15 \*現代統計学における哲学的問題：機械学習と因果推論の観点から, 東京大学社会科学研究所

12/8 \*Bridging the Gap between Statistics and Epistemology, Tokyo Forum for Analytic Philosophy

12/8 \*機械学習を哲学的に考える, 統数研共同研究集会

9/23 \*Modeling Causes of Evolutionary Dynamics, Unimelb/ANU joint webinar on evolution and causality

- 8/27 \*因果構造としての相同性, 第14回生物学基礎論研究会  
7/30 (with Hayato Saigo; poster presentation) On Equivalence of Causal Models, Causal UAI  
7/30 \*統計学を哲学するー統計はなぜ科学的根拠になるのかー, 京都大学サロン LHS  
6/20 (with 西郷甲矢人) On Equivalence of Causal Models, 科学基礎論学会  
6/16 \*統計学はなぜ哲学の問題になるのか, 数理人文学セミナー  
6/3 \*Causal modeling from a philosophical perspective, 27th AIP Open Seminar  
5/29 \*生命と知能のデザインー哲学的観点からの一考察, 神戸大学

## 2020

- 11/7 \*統計学はなぜ哲学の問題になるのか, 哲学オンラインセミナー  
11/3 \*統計学はなぜ哲学の問題になるのか, 京都哲学会  
3/16 統計学・機械学習の哲学的含意, 科学・技術と人文学・社会科学懇談会, 東京理科大学.  
2/10 A category theoretic approach to natural kinds, Hiraoka Lab Seminar, Kyoto University, Kyoto.

## 2019

- 11/17 \*Causal modeling in evolutionary biology, International Workshop on Causality, Probability, and Logic, Sun Yat-Sen University, Guangzhou, China.  
11/10 統計学・機械学習の存在論と認識論, ワークショップ: 機械学習・深層学習の哲学的意義, 日本科学哲学会, 慶応大学.  
10/30 \*自然種の表現としての数理・因果モデル, 滋賀大学第1回文理融合探究ワークショップ, 滋賀大学.  
8/20 Dynamic invariance of evolutionary models, ESEB 2019 (the European Society for Evolutionary Biology), the Logomo Congress and Events Center, Turku, Finland.  
7/11 Ontology and symmetry of evolutionary theories, ISHPSSB, Oslo, Norway.  
6/30 Ontology and symmetry of evolutionary theories, Asia-Pacific Philosophy of Science Association, Fudan University, Shanghai  
6/8 \*統計的因果推論から見た時間と非対称性, 時間学研究所公開学術シンポジウム, 山口大学  
4/21 Bridging the Gap between Statistics and Epistemology, 日本応用哲学会 第11回年次大会, 京都大学  
4/20 Society 5.0を応用哲学する: ITシステムと社会規範 (2)(コメンテーター), 日本応用哲学会 第11回年次大会, 京都大学

## 2018

- 11/24 \*A holistic account of evolutionary theory, Modeling and Reasoning in the Sciences, Institute of Philosophy of Mind and Cognition, National Yang Ming University, Taiwan  
11/3 Species as Models, PSA 2018, Seattle, WA.



- 9/25 Society 5.0 と心理学：IT システムと社会規範について（コメンテーター），日本心理学会第 82 回大会，仙台国際センター
- 9/7 \*哲学的認識論としての統計学，セミナー：科学哲学と精神医学の哲学 (2)，東京大学，東京
- 9/5 \*因果推論を支える存在論と認識論，日本行動計量学会，慶應義塾大学，東京
- 6/3 \*生命について問うとはいかなることか — 日本哲学会でのシンポジウムを受けて，ゲーテ自然科学の集い，平安女学院大学，京都
- 5/20 「生命を問う」とはどういうことか，日本哲学会シンポジウム特定質問，神戸大学，神戸
- 4/8 \*進化生物学の存在論：これまでとこれから，日本生物地理学会大会シンポジウム，東京大学農学部，東京
- 1/7 \*根源を問うための科学と哲学，GSC-Hyogo サマリーセッション（高校生向けレクチャー），甲南大学白川台キャンパス 白川台セミナーハウス I'll，神戸

## 2017

- 12/16 Are there laws of evolution?, The 7th Asia-Pacific Conference on Philosophy of Science, National Chung-Cheng university, Chiayi, Taiwan
- 12/13 \*Are there laws of evolution?, National Yang-Ming university, Taipei, Taiwan
- 9/17 \*適応説明のこれまでとこれから，名古屋哲学フォーラム，南山大学
- 9/11 科学モデルとしての生物種概念，生物学基礎論研究会，北海道
- 6/17 \*生命・知能・理論におけるデザイン問題，科学基礎論学会シンポジウム，琉球大学，沖縄
- 5/13 \*From the population thinking to the causal thinking, Altenberg Workshop in Theoretical Biology, Konrad Lorenz Institution, Klosterneuberg
- 2/16 \*因果性の哲学，リスク解析戦略研究センター研究集会「因果推論の基礎」，統計数理研究所，東京

## 2016

- 11/4 The Causal Homology Concept, PSA 2016, The Westin Peachtree Plaza, GA.
- 10/23 \*現代生物学における「種」と普遍，関西哲学会，大阪大学.
- 9/11 A model-theoretic approach to the species problem, The 6th Asia-Pacific Conference on Philosophy of Science, Kyoto University, Kyoto.
- 8/18 A model-theoretic approach to the species problem, The philosophy work in progress seminar, the University of Sydney, Sydney.
- 8/13 Toward an even newer philosophy of biology, Philosophy of Biology at Dolphin Beach X, Moruya, Australia.
- 8/8 因果・統計・機械学習の哲学に向けて (Toward a Philosophy of Causality, Statistics, and Machine Learning), Kobe Colloquium on Logic, Statistics and Informatics, 神戸大学.
- 6/19 因果的相同概念，日本科学哲学会，埼玉大学.
- 3/16 \*因果と確率の哲学 (Philosophy of causation and probability), 日本社会心理学会，上智大学.

## 2015

10/31 When Less Is More: A Statistical Look at Levels of Explanation, Workshop in Linguistics and Philosophy, Kyoto University, Kyoto.

9/3 \*Nothing in the Philosophy of Evolutionary Biology Makes Sense Except in the Light of Causal Models, Causation in Biology, The University of Bristol, Bristol.

8/6, \*哲学から見た「因果」概念のレビュー (Causality: a philosophical review), 日本生態学会関東シンポジウム, 東京大学.

7/6 In Search of Invariance in Evolutionary Biology, ISHPSSB Conference, Université du Québec à Montréal, Canada.

6/13 進化の法則と対称性 (Evolutionary laws and symmetry), 科学基礎論学会, 北海道教育大学.

## 2013

7/10 Integrating Proximate and Ultimate Causation, ISHPSSB Conference, Université Montpellier 3, France.

## 2012

10/19 \*When Less Is More: A Statistical Look at Levels of Explanation, Hanson Lecture, Indiana University, IN.

6/2 Causal Foundations of Quantitative Genetics, POBAM workshop, University of Wisconsin-Madison, WI.

## 2011

3/18 When Less Is More: A Statistical Look at Levels of Explanation, 13th annual Pitt-CMU joint graduate conference in philosophy, Carnegie Mellon University, PA.

7/13 Paths to Phenotypic Causation, ISHPSSB Conference, University of Utah, UT.

## 2009

6/13 \*グラフ因果モデルと介入因果理論 (Graphical Causal Model and The Interventionist Theory of Causation), 科学基礎論学会, 大阪市立大学.

## 2008

6/? 自然選択とその制約 (Natural Selection and Its Constraints), 京都科学哲学コロキウム, 京都.

## 2007

11/11 統合としての目的論 (Teleology as Unification), 日本科学哲学会, 中央大学, 東京.

## 2006

10/22 生物学における機能説明と機能階層 (Functional Explanation and Functional Hierarchy in Biology), 日本科学哲学会, 北海道大学, 札幌.

5/21 二つの目的論：スピノザの目的論批判をめぐって (Two Sorts of Teleology: Spinoza's Critique on Final Causation), 日本哲学会, 東北大学, 仙台.

## Seminars and Lectures

2023/3/2 正当化のツールとしての統計学：なぜ統計は科学・ビジネスの根拠になるのか?, LabTech Talk (public)

2022/12/21 哲学と統計学との対話から考える「正しさ」の在り方とは, よさのみらい大学公開講座 (public)

2022/5/8 なぜ数学で世界が理解できるのか? 「科学の文法」としての統計学, ヒップファミリークラブ オープントラカレ講座 (public)

2021/11/25 正当化のツールとしての統計学～なぜ統計は科学・ビジネスの根拠になるのか～, パナソニック インフォメーションシステムズ株式会社 (closed)

2021/7/29 統計数理研究所公開講座「統計学を哲学する：統計はなぜ科学的な根拠になるのか」 (public)

## Professional Activities

### Executive Board Member

Japanese Association for Philosophy of Science, 2020–Present.

Philosophy of Science Society Japan, 2020–Present.

### Editorial Board Member

Biology and Philosophy, 2017–Present

Acta Biotheoretica, 2019–Present

Journal Tetsugaku, 2019–Present

Review of Analytic Philosophy, 2020–Present

Kagaku Tetsugaku (Philosophy of Science), 2022–Present

### Committee Member

Asia-Pacific Philosophy of Science Association, 2017–Present

### Member

The Philosophy of Science Association, 2014–Present

The International Society for History, Philosophy, and Social Studies of Biology (ISHPSSB), 2011– Present.

Japanese Association for Philosophy of Science, 2008–Present.

Philosophy of Science Society Japan, 2006–Present.

## Journal Referee

*Philosophy of Science, Biology and Philosophy, The British Journal for the Philosophy of Science, Synthese, Ergo, European Journal for Philosophy of Science, Acta Biotheoretica, Journal of Evolutionary Biology, Proceedings of the Royal Society B, Molecular Ecology, Tetsugaku, The Journal of Philosophy*

Cambridge University Press, Oxford University Press

## Grants, Awards, & Fellowships

1. 2019-21 日本学術振興会科学研究費 基盤研究 (C), 次世代進化論に向けた構造存在論の数理的発展, (代表) 4,420 千円.
2. 2016-18 日本学術振興会科学研究費 若手研究 (B), 次世代進化論に向けた構造存在論の構築, (代表) 3,900 千円.
3. Marjorie Grene Prize, International Society for History, Philosophy, and Social Studies of Biology (ISHPSSB), 2015.
4. Postdoctoral Fellowship for Research Abroad, Japan Society for the Promotion of Science, 2013-2015.
5. Travel Award, The International Society for History, Philosophy, and Social Studies of Biology (ISHPSSB), 2013.
6. Victor E. Thoren Award, The Department of History and Philosophy of Science, Indiana University, 2013.
7. Hanson Prize, The Department of History and Philosophy of Science, Indiana University, 2011.
8. Encouragement Award, The Japan Association for Philosophy of Science, 2011.
9. College of Arts & Sciences travel award, Indiana University, 2011.
10. Ishimoto Award, Philosophy of Science Society, Japan, 2009.
11. Fulbright Scholarship for Graduate Study, 2008–2010.
12. Rotary Foundation Ambassadorial Scholarship, 2008–2009.
13. Research Fellowship for Doctoral Student, Japan Society for the Promotion of Science, 2006–2008.
14. Distinguished Student Award, Japan Student Services Organization, 2006.