



July 10, 2020

The Institute of Statistical Mathematics (ISM)

The Japan Statistical Society (JSS)

# **Announcement of the Awardee of the Third Akaike Memorial Lecture Award**



**Awardee/Speaker:** Professor John Brian Copas  
(University of Warwick, UK)

**Lecture Title:** “Some of the Challenges of Statistical Applications”

**Debater:** Professor Masataka Taguri (Yokohama City University)

Dr. Masayuki Henmi

(The Institute of Statistical Mathematics)

**Date/Time:** 16:00–18:00 September 9, 2020

1. Welcome Speech and Explanation of the Akaike Memorial Lecture Award
2. Akaike Memorial Lecture
3. Discussion with Young Scientists and Professor Copas’ s rejoinder

**Venue:** Toyama International Conference Center (<https://www.ticc.co.jp/english/>)  
1-2 Ote-machi Toyama-city Toyama 930-0084MAP, Japan

- Detailed information will be uploaded on the website of ISM ([http://www.ism.ac.jp/index\\_e.html](http://www.ism.ac.jp/index_e.html)) and other media.

## **Professor John B. Copas (current age, 76)**

Emeritus Professor, University of Warwick, UK

Professor Copas, born in 1943, is currently Professor Emeritus at the University of Warwick.

With a focus on both theory and application, his works provide a deep insight and wide perspective on various sources of data bias.

His contributions span over a wide range of academic disciplines, including statistical medicine, econometrics, and psychometrics. He has developed the Copas selection model, a well-known method for sensitivity analysis, and the Copas rate, a re-conviction risk estimator used in the criminal justice system.



## **Dr. Hirotugu Akaike**

The late Dr. Akaike was a statistician who proposed the Akaike Information Criterion (AIC). He established a novel paradigm of statistical modeling, characterized by a predictive point of view, that was completely distinct from traditional statistical theory. Dr. Akaike’s research has greatly influenced a wide range of research areas.

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## Announcement of the Awardee of the Third Akaike Memorial Lecture Award

### ◆ Overview:

In May of 2016, the Institute of Statistical Mathematics (ISM) and the Japan Statistical Society (JSS) have jointly created the Akaike Memorial Lecture Award to celebrate the outstanding achievements of the late Dr. Hirotugu Akaike. Dr. Akaike greatly influenced a wide range of research by proposing the Akaike Information Criterion (AIC) and establishing a novel paradigm for statistical modeling, which was distinguished by its predictive point of view, and was totally distinct from traditional statistical theory. The Akaike Memorial Lecture Award aims to encourage the education of talented young researchers by recognizing researchers who have achieved outstanding accomplishments that contribute to the field of statistical sciences.

The Third awardee of this award is Professor John Brian Copas, Professor Emeritus at the University of Warwick, UK. Professor Copas has had several achievements in statistical methodology with a focus on practical applications. His six papers were read before the Royal Statistical Society (RSS) and published in the society's journal (JRSS) with discussions. In 1987, he was awarded the prestigious Guy Medal<sup>1</sup> in Silver of the RSS. In recent years, he has been actively engaged in the study of meta-analysis methodology. The Copas selection model that bears his name is widely used as one of the standard sensitivity analysis methods for assessing the impact of publication bias.

We must regretfully announce that he will not be able to come to Japan this year because of the coronavirus disease 2019 (COVID-19) outbreak. However, he is scheduled to deliver his award lecture online on September 9, 2020, at the plenary session of the Japanese Joint Statistical Meeting by Japanese Federation of Statistical Science Association (JFSSA) 2020 in Toyama Prefecture.

### Reason for Selection:

Professor Copas has pursued the study of practical statistical analysis methodology, like the late Dr. Akaike.

In the 1980s, he published a very important idea for expanding the AIC model selection method, and

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<sup>1</sup> The Guy Medals are awarded by the RSS at its annual conferences in three categories: Gold, Silver, and Bronze. The medals are named after William Guy (June 13, 1810, to September 10, 1885), a British physician and biostatistician. He served as the president of the Statistical Society of London, the predecessor to the RSS.



proposed a method to consider measured and predictive distributions separately. In the area of statistical inference, his contributions deserve note. The Rubin causal model, proposed in the 1970s by Professor Donald Rubin at Harvard University, is one of the most well-known statistical frameworks for causal inference. Professor Copas' output on statistical causal inference preceded the major activities of Professor Rubin when epidemiologic research ignited mathematical arguments about proliferation of attributable risk (Hamilton's model). Professor Copas has cultivated years of academic partnership with many mathematical scientists in Japan. He served more than five times as a visiting professor at the Institute of Statistical Mathematics, mentoring and contributing to the developments of researchers affiliated with this Institute.

For these reasons, the nominating committee selected Professor Copas as the third awardee of the Akaike Memorial Lecture Award.

### ◆ The Third Awardee: Professor John Brian Copas

#### **Research Achievements;**

Professor Copas presented his doctoral thesis in 1967 on the compound decision problem to the Imperial College London under the supervision of Professor Barnard. In 1969, he published a paper with discussion on compound decisions and empirical Bayes in the Journal of the Royal Statistical Society (JRSS) [1]. This paper provided a penetrating insight into decision-making problems in the case where each observation has an unknown parameter. This work laid the foundation of his famous 1983 article, "Regression, Prediction and Shrinkage" [2]. The 1983 paper shed light on Stein's seemingly strange phenomenon in estimating means (Stein's paradox) from the viewpoint of prediction, expanding statistical understanding of the shrinkage behavior. Excellent works on shrinkage estimation theory have been conducted by many Japanese statisticians, and Professor Copas' 1983 article is considered to have served as a springboard for their achievements. Professor Copas's six papers were read before the Royal Statistical Society and published with discussions in JRSS. His works are always achieved on a fine balance between theory and application. Moreover, his research efforts provided a deep insight and wide perspective on various sources of data bias [3][4], making a lasting impact for years to come. His research interests are wide-ranging, and his contributions have spanned academic disciplines such as medical statistics, econometrics and psychometrics.

For example, he co-authored an article that revisited meta-analytical evidence on lung cancer and passive smoking [5]. This work showed possible involvement of publication bias in the



estimation of cancer risk, and suggested that the epidemiology community should reconsider the conventional approaches to meta-analysis and interpretation. The Copas selection model, developed for sensitivity analysis in this work, has been a common method for assessing the impact of publication bias in meta-analysis [6].

Moreover, Professor Copas' long-term achievements include criminal statistics analysis. With the rising sex, drug, and other offence rates resulting from rapid social changes in the UK, he made a series of contributions, as a statistician, to the understanding and prediction of delinquency. In particular, his approaches using Cox model analysis for re-offending events and logistic regression analysis for re-conviction and risk factors were highly appreciated by the Ministry of Justice experts, and the "Copas rate," a re-offence probability estimator, has been in reports by the Ministry of Justice [7].

His research stance reflects the rich tradition of the British school of statistics. He has extended open arms and accepted students and researchers from Japan, China, Iran, and other countries.

Since Professor Copas retired from the University of Warwick, he has continued his research activities in affiliation with the University College London and other institutions. In those years, he has been vigorously engaged in multivariate meta-analysis, network meta-analysis, and other topics of practical significance together with many British front-line scientists. His unrelenting enthusiasm is an inspiration for many researchers.

- [1] Copas, J. B. (1969).  
Compound Decisions and Empirical Bayes (with discussion).  
Journal of the Royal Statistical Society, B, 31, 397-425.
- [2] Copas, J. B. (1983).  
Regression, Prediction and Shrinkage (with discussion).  
Journal of the Royal Statistical Society, B, 45(3), 311-354.
- [3] Copas, J.B. and Li, H.G. (1997).  
Inference for non-random samples (with discussion).  
Journal of the Royal Statistical Society, B, 59, 55-95.
- [4] Copas, J.B. and Eguchi, S. (2005).  
Local model uncertainty and incomplete-data bias (with discussion).  
Journal of the Royal Statistical Society, B, 67, 459-513.
- [5] Copas, J. B. and Shi, J.Q. (2000).  
Reanalysis of Epidemiological Evidence on Lung Cancer and Passive Smoking.  
British Medical Journal, 320 (7232) 417-418.



- [6] Copas, J.B. and Shi, J.Q. (2000).  
Meta-analysis, funnel plots and sensitivity analysis.  
Biostatistics, 1, 247-262.
- [7] Copas, J.B. and Marshall, P. (1998).  
The Offender Group Reconviction Scale: A Statistical Reconviction Score for Use by Probation Officers.  
Journal of the Royal Statistical Society, C, 47, 159-171.

## CV of Professor John Brian Copas

### Current Position

Emeritus Professor at the University of Warwick, UK

Honorary Professor at University College London, UK

### Biography

Date of birth: 13th August 1943 (current age, 76)

Education: 1964 Imperial College London: BSc Mathematics (1st class)

1967 Imperial College London: PhD Statistics

### Professional Summary

1966-1973 Lecturer/Senior Lecturer, University of Essex, UK

1969-1970 Assistant Professor, State University of New York at Buffalo, USA

1973-1983 Professor of Statistics, University of Salford, UK

1983-1991 Professor of Statistics, University of Birmingham, UK

1992- Professor of Statistics, University of Warwick, UK

2009 - Emeritus Professor at the University of Warwick, UK

2019- Honorary Professor at University College London, UK

- \* Served two three-year terms as head of the Department of Statistics at Warwick.
- \* Also short-term visiting appointments at several overseas universities and research institutes (including the ISM).



### ◆ The Third Akaike Memorial Lecture

Under the sponsorship of the JSS, the Third Akaike Memorial Lecture will be hosted jointly by ISM and the Organizing Committee for the Japanese Joint Statistical Meeting. The lecture will be delivered online at the plenary session of the Japanese Joint Statistical Meeting 2020 in Toyama Prefecture. You can listen to the lecture at its' venue.

**Speaker:** Professor John Brian Copas (University of Warwick)  
**Title:** "Some of the Challenges of Statistical Applications"  
**Organizers:** Professor Manabu Iwasaki, President of JFSSA  
 Professor Hiroe Tsubaki, Director-General of ISM  
**Discussants:** Professor Masataka Taguri (Yokohama City University)  
 Dr. Masayuki Henmi (ISM) **\*The entire session will be presented in English.**  
  
**Date:** 16:00–19:00, Wednesday, September 9, 2020  
**Venue:** 1-2 Ote-machi, Toyama-city, Toyama, 930-0084  
 (<https://www.ticc.co.jp/english/access/>)

\*Additional information will be provided on the websites of ISM  
 ([https://www.ism.ac.jp/index\\_e.html](https://www.ism.ac.jp/index_e.html)), the Japanese Joint Statistical Meeting 2020  
 (<https://confit.atlas.jp/guide/event/jfssa2020/top>), and the Japan Statistical Society  
 (<https://www.jss.gr.jp/en/>).

### ◆ Overview of the Akaike Memorial Lecture Award

The Akaike Memorial Lecture Award was inaugurated in 2014 under the joint sponsorship of ISM and JSS. The Award was named after the late Dr. Hirotugu Akaike (\*1), who left a wide-reaching and influential legacy of research in the statistical sciences. Along with the Award, the ISM and JSS organize a memorial lecture by the awardee, offering opportunities for exchange among statistical researchers from within and outside Japan as well as inspiration to young and talented researchers. Thus, the Award contributes to further advances in this field.

Every 2 years, one awardee is selected from among those individuals who are, like the late Dr. Akaike, ahead of their times, exercising an international influence over a wide range of fields in the statistical sciences (including mathematical sciences and mathematical engineering, such as control and optimization) and related applied fields. The awardee receives a ¥100,000 honorarium, an award plaque, and travel expenses.

For educational purposes, the Memorial Lecture will be followed by time for question and discussion involving the Awardee and selected students and young researchers. The contents of the lecture, including the accompanying discussion, will be published as an invited article in the Annals of the Institute of Statistical Mathematics (AISM).



### ◆ (\*1) Biography of Dr. Hirotugu Akaike

Born on November 5, 1927 in Shizuoka Prefecture, Japan, Hirotugu Akaike graduated from the Imperial Naval Academy, the First Higher School, and the Department of Mathematics, and the Faculty of Science, The University of Tokyo. He joined the Institute of Statistical Mathematics in 1952.

In the 1960s, Dr. Akaike led the field of time series analysis through his research and development of spectral analysis techniques, multivariate time series models, statistical control methods, and TIMSAC (Time Series Analysis and Control), a software package designed for time-series analysis. In the 1970s, Dr. Akaike proposed the Akaike Information Criterion (AIC). Thus, he established a new paradigm of statistical modeling, which was characterized by a predictive point of view, and therefore completely distinct from traditional statistical theory. His accomplishments have greatly influenced research in a variety of fields. In 1980s, Dr. Akaike advanced his research to realize the practical application of Bayesian modeling. His research played a pioneering role in the development of new information processing systems that could meet the demands of the era of large-scale information. His research results were held in the highest esteem by his colleagues and earned him many prizes, including the Medal of Honor (Purple Ribbon), the Second Class Order of the Sacred Treasure, and the Kyoto Prize. His work continues to be cited today.

Dr. Akaike took the position of Director-General of the ISM in 1986. While overseeing the operation of the Institute, he also took part in establishing and teaching in the Statistical Studies program at the Graduate University for Advanced Studies. His term as Director-General ended in 1994. At that time, he was appointed Professor Emeritus at the Graduate University for Advanced Studies, but never lost his passion for research; rather than resting on his well-deserved laurels, he continued his work, publishing studies of topics as diverse as Bayesian models and the golf swing. He also served as the 19th president of the JSS from January 1989 to December 1990. He passed away in Ibaraki Prefecture, Japan on August 4, 2009 (age 81).

On November 5, 2017, a celebration of Dr. Hirotugu Akaike's 90th Birthday appeared on the Google Doodle in 16 countries and regions around the world.

### [Reference: links to each related website]

Google Doodle:

<https://www.google.com/doodles/hirotugu-akaike-90th-birthday>

Memorial Website for the late Dr. Akaike: Hirotugu Akaike Memorial Website:

<https://www.ism.ac.jp/akaikememorial/index-e.html>



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