

PROMOTION RECOMMENDATION
The University of Michigan
College of Literature, Science, and the Arts

Yves A. Atchade, assistant professor of statistics, College of Literature, Science, and the Arts, is recommended for promotion to associate professor of statistics, with tenure, College of Literature, Science, and the Arts.

Academic Degrees:

Ph.D.	2003	University of Montreal
M.S.	2000	University of Montreal
B.S.	1995	Université Nationale du Bénin

Professional Record:

2004 – 2006	Assistant Professor, Department of Statistics, University of Ottawa
2003 – 2004	Post-doctoral Fellow, Department of Statistics, Harvard University
2006 – present	Assistant Professor, Department of Statistics, University of Michigan

Summary of Evaluation:

Teaching – Professor Atchade is a meticulous and diligent instructor who has done outstanding work updating the topics in the core computing courses in both undergraduate and graduate curricula. He also taught specialized 800-level courses aimed at preparing students for research. He co-supervised two Ph.D. students who are now working for Google and Yahoo. Professor Atchade’s ability to prepare students for computing-oriented industry jobs is a valuable asset to students. He is currently co-supervising another student. He has served as a mentor to several graduate students and sat on numerous Ph.D. committees inside and outside the department.

Research – Professor Atchade’s research interests are Bayesian statistics and Markov chain Monte Carlo (MCMC) simulations. These areas have been very active in the past 20 years, fueled by recent advances in computing power. Professor Atchade has a coherent research agenda that continues to grow in new directions. There is strong evidence that he is on track for a highly successful research career. He tackles hard problems of fundamental importance, and his research output is excellent. He has produced fourteen journal articles that have been published or accepted. Most of his work appears in first-rate journals. He has received funding from the National Science Foundation and has two proposals pending.

Recent and Significant Publications:

- “Kernel estimators of asymptotic variance for adaptive Markov chain Monte Carlo,” *Annals of Statistics*, 39(2), 2011, pp. 990-1011.
- “Limit theorems for some classes of adaptive MCMC algorithms with sub-geometric kernels,” with G. Fort, *Bernoulli*, 16, 2010, pp. 116-154.
- “On the efficiency of some adaptive MCMC algorithms,” with C. Andrieu, *Electronic Communications in Probability*, 12, 2007, pp. 336-349.
- “On adaptive Markov chain Monte Carlo algorithms,” with J. S. Rosenthal, *Bernoulli*, 11, 2005, pp. 815-828.

Service – Professor Atchade has served on important departmental committees. During the summer of 2007 he took part in the Summer Undergraduate Mathematical Science Research Institute (SUMSRI), hosted by the department with the goal of encouraging minority undergraduates to embrace careers in science, technology, engineering, and mathematics (STEM) disciplines. His volunteer work in training students in West Africa through the Institute of Empirical Research in Political Economy is admirable. He has also served as external reviewer for many of the top probability and statistics journals.

External Reviews:

Reviewer (A)

“His record is that of a mathematical statistician who has considerable technical skills and a thorough knowledge of the field in which he is working. ... The Statistics and Computing paper, in particular, has interesting new ideas regarding simulated tempering algorithms.”

Reviewer (B)

“Yves’s contributions are some of the most impressive that I’ve seen. The questions he tackles are interesting and important. ... Yves’s research productivity is characterized by quality, quantity and momentum, three crucial indicators that bode very well for future productivity. He has a coherent research agenda that continues to grow in new directions as is evident from his rich pipeline.”

Reviewer (C)

“Yves Atchade has a significant and growing reputation for his research on Markov chain Monte Carlo algorithms. ... It seems to me that with his portfolio of completed work, Atchadé amply demonstrates that he is well on track for a very successful research career. He has clearly shown his independence, and his capacity of picking good research questions and solving them with a high degree of technical mastery. ... Atchadé is a very worthy candidate for tenure...”

Reviewer (D)

“I was impressed by Dr. Atchade’s theoretical results, especially regarding the convergence of the algorithm – it is quite typical that physicists introduce a method, and just assume that the method works fine without real theoretical justification. Dr. Atchade’s paper is one of the first rigorous theoretical proofs of the convergence (and the associated conditions) of the Wang-Landau algorithm.”

Reviewer (E)

“Dr. Atchade is undoubtedly a leading figure in adaptive Markov chain Monte Carlo (MCMC), especially on the theoretical side. ...he stands out in the MCMC community as one of those few who are at ease in tackling some [of the] most difficult and technical problems in the field. However, unlike a number of other leading theoreticians...Dr. Atchade also carries out empirical evaluations to investigate the actual performance of his theoretical constructs... We simply have too few in the field who are able to do both...”

Reviewer (F)

“He is now a leader in the asymptotic analysis of stochastic approximation algorithms. His latest work on *limit theorems for quadratic forms* brings in completely new tools for asymptotic

analysis of stochastic approximation and MCMC algorithms. ...his breadth is excellent, and he has gone well beyond his dissertation research..."

Reviewer (G)

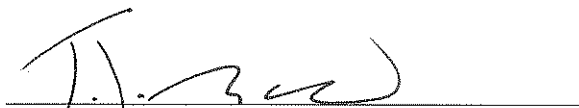
"...the impact of his work (particularly in MCMC) is very strong and impressive for someone at such an early career stage. I think Dr. Atchade's potential for future research is particularly good. ...he is now working more broadly (particularly in filtering, and some more inference-driven problems). I think these are particularly fruitful directions for him and will enable him to have even more impact for his research on theory."

Reviewer (H)

"...Yves's research work has shown a surprising maturity for someone [of his generation]. He has been able to select interesting problems, and attack them with significant mathematical depth. His technical ability is quite high, and he combines that with hard work, perseverance, and good research judgment. ... I think his research record and impact, at the times when he as being considered for tenure, are about as strong as any statistician that I can think of."

Summary of Recommendation:

Professor Yves Atchade has established himself as a leader in his research area. He has helped the department develop new courses in statistical computing and has been an effective doctoral thesis advisor. He has also provided valuable service to the department and to the profession. The Executive Committee of the College of Literature, Science, and the Arts and I recommend that Assistant Professor Yves A. Atchade be promoted to the rank of associate professor of statistics, with tenure, College of Literature, Science, and the Arts.



Terrence J. McDonald
Arthur F. Thurnau Professor,
Professor of History and Dean,
College of Literature, Science, and the Arts

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