PROMOTION RECOMMENDATION
The University of Michigan
College of Engineering

Peter M. Chen, associate professor of electrical engineering and computer science, with tenure, Department of Electrical Engineering and Computer Science, College of Engineering, is recommended for promotion to professor of electrical engineering and computer science, with tenure, Department of Electrical Engineering and Computer Science, College of Engineering.

Academic Degrees

B.S.	1987	Pennsylvania State University, Electrical Engineering
M.S.	1989	University of California, Computer Science
Ph.D.	1992	University of California, Computer Science

Professional Record

1999-present	Associate Professor, Department of Electrical Engineering and Computer Science, University of Michigan
1993–1999	Assistant Professor, Department of Electrical Engineering and Computer Science, University of Michigan
1993–1993	Postdoctoral Researcher, Department of Electrical Engineering and Computer Science, University of California

Summary of Evaluation

Teaching: Professor Chen is a superb teacher, amongst the best in the College of Engineering. He has devoted himself to creating a CSE curriculum that is rigorous, innovative, and enjoyable. He completely revised two core undergraduate courses, one in computer architecture and one in operating systems; he not only significantly updated and enhanced the curricular material, but also developed the infrastructure needed to teach these courses to more than 100 students at a time. Currently, he is developing an entirely new version of Engineering 100, in which freshman students will design, build, and program a small computer. Professor Chen's outstanding classroom performance has yielded extremely high Q1/Q2 scores: amongst his five most recent classes, four of which were at the undergraduate level, he averaged 4.68/4.93. He has also won several teaching awards, including the College of Engineering Teaching Excellence Award. Students rave about his teaching and mentoring skills, saying, for example, that he is "one of the best professors I know," that he is an "excellent teacher . . . [whose classes are] interesting, informative, and fun", and that he shows "great talent, ability, and dedication . . .as well as a genuine interest in helping his students." He supervised three students who completed their Ph.D.'s; he then shifted his research focus, requiring him to rebuild his research group, which he has done successfully, and he is now supervising four Ph.D. students, who report that "he is everything I have wanted in an advisor," and that he demonstrates "great talent, ability, and dedication both as a research group leader and a teacher."

Research: Professor Chen is an acclaimed researcher in the field of operating systems, where has he made many substantial contributions on the topics of reliable memory, virtual-machine security, and speculative execution for distributed file systems. His work is technically quite deep and at the same time has highly relevant applications: for instance, he developed an operating systems technique that preserves main memory across system crashes, and a method for determining the sequences of steps that led to an operating-system intrusion. Professor Chen has published his work in the premiere venues in the field, and he has received six Best Paper Awards, an unusually high number. His work is viewed as extremely

strong by his peers, and he has obtained a high level of funding to support it, having served as PI on a dozen research grants, and co-PI on several more.

Recent and Significant Publications:

Joshi, Ashlesha, Samuel T. King, George W. Dunlap, and Peter M. Chen. Detecting past and present intrusions through vulnerability-specific predicates. Proceedings of the 2005 Symposium on Operating Systems Principles (SOSP), October 2005.

Nightingale, Edmund B., Peter M. Chen, and Jason Flinn. Speculative execution in a distributed file system. Proceedings of the 2005 Symposium on Operating Systems Principles (SOSP), October 2005. Best Paper Award.

King, Samuel T., George W. Dunlap, and Peter M. Chen. Debugging operating systems with time-traveling virtual machines. Proceedings of the 2005 USENIX Technical Conference (USENIX), April 2005. Best Paper Award.

Chen, Peter M. An Automated Feedback System for Computer Organization Projects. IEEE Transactions on Education, 47(2):232-240, May 2004.

King, Samuel T. and Peter M. Chen. Backtracking intrusions. Proceedings of the 2003 Symposium on Operating Systems Principles (SOSP), pages 223-236, October 2003. Best Paper Award.

King, Samuel T., George W. Dunlap, and Peter M. Chen. Operating System Support for Virtual Machines. Proceedings of the 2003 USENIX Technical Conference (USENIX), pages 71-84, June 2003.

Dunlap, George W., Samuel T. King, Sukru Cinar, Murtaza Basrai, and Peter M. Chen. ReVirt: Enabling Intrusion Analysis through Virtual-Machine Logging and Replay. Proceedings of the 2002 Symposium on Operating Systems Design and Implementation (OSDI), pages 211-224, December 2002.

Service: Professor Chen is a very good citizen of the CSE Division, always providing unselfish and excellent service, for example, as a member of the CSE Graduate Committee, CSE Curriculum Committee, and CSE Search Committee, where he represented the software systems group for several years. He also served on the CSE Executive Committee and as Director of the Software Systems Laboratory. Externally, he also has an excellent service record, having been on several prestigious conference program committees and as Program Co-Chair for one of these (OSDI).

External Reviewers:

Reviewer (A): "Peter absolutely deserves this promotion, and has established himself as one of the leaders in the field as a whole" "...this is about as strong a case as could be imagined."

Reviewer (B): "...a great asset to the University of Michigan and to the computer systems research community."

Reviewer (C): "Over the last decade Peter has been exceptional [sic] productive in the operating system community, with an exciting research program around three topics..." "In short, Peter is a winner."

Reviewer (D): "The approach [that Prof. Chen took in his Rio project] was somewhat controversial at the time.... In the end, Peter demonstrated that his approach is both more reliable and higher performance than current Unix-style file systems." "Without Peter's software and methodology, we would have had significant difficulty evaluating our system; it probably saved us a year of hard thought and sweat."

Reviewer (E): "...Peter's recent work on backtracking intrusions is excellent, and is among the most talked about research efforts in the systems community." "...Peter's research record and visibility in the community is outstanding."

Reviewer (F): "...Pete has an impressive research record and the broader attributes of a full professor. The case for promotion is clear!"

Reviewer (G): "His publication track record is outstanding: not only across a range of interesting topics, but often at a depth, and with a level of insight, that helps define the field's approach to them."

Reviewer (H): "...Peter Chen's case for promotion is one of the strongest I have seen in a number of years."

Summary of Recommendation: Professor Chen is a very highly regarded computer scientist who has made significant contributions to the field of operating systems; he is an outstanding teacher and mentor; and he is a diligent member of the university community, who performs significant and high-quality service. It is with the support of the College of Engineering Executive Committee that I recommend him for promotion to professor of electrical engineering and computer science, with tenure, Department of Electrical Engineering and Computer Science, College of Engineering

Ronald Gibala
Interim Dean, College of Engineering

May 2006