

**PROMOTION RECOMMENDATION**

The University of Michigan  
College of Engineering

Vineet R. Kamat, assistant professor of civil and environmental engineering, Department of Civil and Environmental Engineering, College of Engineering, is recommended for promotion to associate professor of civil and environmental engineering, with tenure, Department of Civil and Environmental Engineering, College of Engineering.

Academic Degrees:

Ph.D. 2003 Virginia Polytechnic Institute and State University, Civil Engineering, Blacksburg, VA  
M.S. 2000 Virginia Polytechnic Institute and State University, Civil Engineering, Blacksburg, VA  
B.S. 1998 Goa University, Civil Engineering, Taleigao, India

Professional Record:

2003–present Assistant Professor, Department of Civil and Environmental Engineering, University of Michigan  
1998–2003 Research Assistant, Department of Civil and Environmental Engineering, Virginia Polytechnic Institute and State University  
1997–1998 Site Engineer, M.K. Builders Pvt. Ltd., Bangalore, India  
1997–1997 Site Engineer, Sapana Real Estate, Goa, India

Summary of Evaluation:

Teaching: Professor Kamat is an accomplished teacher who demonstrates a high level of commitment to students and the teaching mission. He rotates between three construction engineering and management courses: CEE 431 (Construction Contracting), a required course for all undergraduate CEE students which includes a significant project; CEE 531 (Construction Cost Engineering); and CEE 633 (Construction Management Information Systems), a course created by Professor Kamat bringing his expertise in automated information systems to the classroom and attracts students from a range of departments. He has performed very well after teaching thirteen classes and has earned an overall Q1 average of 4.08 and a Q2 average of 4.40. It is apparent that Professor Kamat works hard to continually improve his instructional skills as a teacher and make himself available to students both inside and outside of the classroom.

Professor Kamat is an excellent mentor. He has graduated one Ph.D. student who is currently working as an assistant professor, and is on schedule to graduate his second Ph.D. student in May 2009. He currently advises a third Ph.D. student. He is committed to giving students hands-on educational experiences by taking on the responsibility to advise six M.S. and M.Eng. students with projects and three undergraduate students with projects (including one student at Indian Institute of Technology in Bombay, who spent a summer with Professor Kamat in Ann Arbor). His commitment to maintaining a diverse pipeline into the College and Department is demonstrated by engaging students beyond the classroom. As part of his CAREER Award, Professor Kamat worked with undergraduate students to develop a “MagicBook”, a real book combined with an augmented reality visualization tool targeted at middle and high school students engaging them to learn about construction engineering and management. Furthermore, he has been a devoted participant in Tech Day and in recruitment efforts attracting underrepresented students to the University.

Research: Professor Kamat is a nationally and internationally recognized expert in the development and application of advanced visualization tools, including virtual reality (VR) and augmented reality (AR) technologies, that can be applied to construction and civil engineering problems. His work is routinely recognized to be at the leading edge of the construction engineering and management (CEM) field, and the outcomes of his work continue to be used by both the CEM industry and educators around the world. He has developed two animation-based languages that are designed to help users visualize (in a 3-dimensional virtual reality or augmented reality context) proposed construction operations before they are employed. This allows construction managers to more actively anticipate and avoid problems that may come about as a result of construction decisions that might otherwise have been discovered at the time of deployment. His software packages are being deployed by both the US Army Corp of Engineers Construction Engineering Research Laboratory (CERL) and the National Institute of Standards and Technology (NIST). In addition to being applicable to the CEM industry, Professor Kamat's accomplishments are also appropriate to apply to the rapid post-disaster evaluation of building structures.

Professor Kamat has been widely successful at acquiring funding to support his research agenda. He has demonstrated his ability as an independent PI and a strong collaborator. He has a strong publication record to date, publishing 21 journal papers, two short journal communications, 30 papers in conference proceedings and three book chapters. The quality and impact of his work has been clearly recognized through receipt of multiple, prestigious awards and achievements, including two best paper awards and one invited keynote talk at an international conference. He has successfully acquired research funding totaling \$1.7 million as PI or co-PI.

#### Recent and Significant Publications:

- Behzadan, A. H., Aziz, Z., Anumba, C., and Kamat, V. R., 2008, "Ubiquitous Location Tracking for Context Specific Information Delivery on Construction Sites," *Automation in Construction*, 17(6), pp. 737-748.
- Behzadan, A. H., Timm, B. W., and Kamat, V. R., 2008, "A General Purpose Modular Hardware and Software Design for Mobile Outdoor Augmented Reality Visualization of Simulated Construction Operations," *Advanced Engineering Informatics*, 22, pp. 90-105.
- Kamat, V. R., 2008, "Logical Product Models for Automated Scripting of Process-Level Construction Animations," *Advances in Engineering Software*, 39(3), pp. 233-241.
- Kamat, V. R. and El-Tawil, S., 2005, "Rapid Post-Disaster Evaluation of Building Damage Using Augmented Situational Visualization," *Proceedings of the 2005 Construction Research Congress*, American Society of Civil Engineers, Reston, VA, 1-10. (Best Paper Award.)
- Kamat, V. R. and Martinez, J. C., 2004, "Dynamic Three-Dimensional Visualization of Fluid Construction Material," *Journal of Computing in Civil Engineering*, 18(3), pp. 237-247. (Best Paper Award from ASCE.)

Service: Professor Kamat's service record within the department, college and nationally is exemplary. His service to the profession is significant and includes being an associate editor (since 2005) for the top journal in his field, *Journal of Computing in Civil Engineering*, and as chair of the American Society of Civil Engineers (ASCE) Database and Information Management Committee. In November 2008, Professor Kamat's prominence within the CEM profession was recognized when he was elected secretary of the ASCE Construction Research Council. He will automatically move to vice-chair and finally chair by 2010). This is a particularly stellar accomplishment for someone at his rank. Within the department, Professor Kamat has taken on significant service on multiple committees due to the limited size of the CEM program and the department's historical practice of having a representative from each subprogram within the department on every committee. In 2008, due to the loss of the only senior member of the CEM program to medical leave, he took the helm of the CEM program without hesitation and with

enthusiasm. Professor Kamat's service commitment to his department and profession is both significant and of high impact.

External Reviewers:

Reviewer A: "Vineet's academic and research work is of the highest quality. ... Vineet's research is in 3D animation of simulated processes and in 3D augmented reality. His work in both areas is without peers."

Reviewer B: "Dr. Kamat's ability to bring advanced computing hardware and software technologies to develop practical solutions to [the] civil and construction engineering domain is truly unique among researchers in his field."

Reviewer C: "He, in my judgment, is a shining star and in a class of his own."

Reviewer D: "Overall, Vineet is a true scholar with a broad and solid set of accomplishments."

Reviewer E: "His research in discrete simulation and augmented reality for construction is without peer, and his potential for continued breakthrough research is without bound."

Reviewer F: "I would rank Dr. Kamat at the top of his peer group."

Reviewer G: "It is obvious that Dr. Kamat's enthusiasm extends beyond his own research interests into the area of service."

Reviewer H: "...Dr. Vineet Kamat has demonstrated excellence in his activities of scholarship, research and service to the construction engineering and computing community. When compared to other peers at the same level of experience, I would place him in the first or second spot."

Summary of Recommendation: Professor Kamat is very prominent in the construction engineering and management discipline and has made significant contributions, especially as it pertains to advanced visualization tools. He is an excellent teacher and mentor to students, and demonstrates significant leadership in his service to the university and to his profession. It is with the support of the College of Engineering Executive Committee that I recommend Vineet R. Kamat for promotion to associate professor of civil and environmental engineering, with tenure, Department of Civil and Environmental Engineering, College of Engineering.



David C. Munson, Jr.  
Robert J. Vlastic Dean of Engineering  
College of Engineering

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