Jean-Claude Laprie Award
DSN 2024

The Jean-Claude Laprie Award in Dependable Computing is awarded annually since 2012 by the IFIP Working Group 10.4 on Dependable Computing and Fault Tolerance in his honor. The award recognizes outstanding papers that have significantly influenced the theory and/or practice of Dependable Computing. It takes the form of a memorial plaque presented to the author(s) at the Annual IEEE/IFIP International Conference on Dependable Systems and Networks (DSN). Any paper relating to dependable and secure computing, and published at least 10 years prior to the award year (e.g., 2014 or earlier for the 2024 award) is eligible for the award.

The award seeks to recognize papers that have had a significant impact in the intervening years in one or more of the three following categories:

- Technical/scientific research impact
- Industrial/commercial product impact
- Broad impact on the dependable computing community

Winners of the 2024 Jean-Claude Laprie Award

For 2024, the Award Committee has unanimously decided to select the following two papers:

S. Garg, A. van Moorsel, K. Vaidyanathan and K. S. Trivedi, "A methodology for detection and estimation of software aging," Proceedings Ninth International Symposium on Software Reliability Engineering, Paderborn, Germany, 1998, pp. 283-292, doi: 10.1109/ISSRE.1998.730892.

Y. Kim, R. Daly, J. Kim, C. Fallin, J. H. Lee, D. Lee, C. Wilkerson, K. Lai and O. Mutlu., "Flipping bits in memory without accessing them: An experimental study of DRAM disturbance errors," 2014 ACM/IEEE 41st International Symposium on Computer Architecture (ISCA), Minneapolis, MN, USA, 2014, pp. 361-372, doi: 10.1109/ISCA.2014.6853210.

The Award Citation:

"A methodology for detection and estimation of software aging" by Sachin Garg, Aad van Moorsel, Kalyan Vaidyanathan and Kishor S. Trivedi, was the first paper to monitor executing software and statistically analyze the collected data to predict the time to exhaustion of various operating system resources and ultimately to quantify and estimate software aging. The paper had a significant impact on the academic community (400+ citations) and was pioneer in proposing a methodology to measure software aging and rigorous mathematical techniques to analyze aging effects. The proposed methods had a strong impact in industry, namely catching the attention of researchers at IBM who took up on them and

implemented aging detection and software rejuvenation in the IBM X-Series systems. Soon after, Sun Microsystems, Motorola and Oracle, also exploited the ideas and applied them to commercial products. Along with the JCL awarding-winning 1995 FTCS paper by Huang and Kintala, which started the area of software ageing and software rejuvenation, this paper is also a landmark in this dependable computing research area. For these reasons, particularly the combination of impact on scientific research, on commercial exploitation and on the dependability community, the award Committee decided to select this paper as one of the 2024 JCL award winners".

"Flipping bits in memory without accessing them: An experimental study of DRAM disturbance errors" by Yoongu Kim, Ross Daly, Jeremie Kim, Chris Fallin, Ji Hye Lee, Donghyuk Lee, Chris Wilkerson, Konrad Lai and Onur Mutlu, was the first paper to introduce, demonstrate, analyze, and propose solutions to DRAM row disturbance errors, later known as Rowhammer. The solution proposed in the paper, PARA (Probabilistic Adjacent Row Activation), was incorporated by Intel and other CPU vendors, and is still one of main ways to fix Rowhammer. It took a while for the problem to be recognized by DRAM vendors, but eventually it led to significant efforts and investment into fixing it. On the research side, the paper had a strong impact by creating new research directions into DRAM security and Rowhammer attacks and defenses, collecting an impressive number of citations over the last 10 years (1300+ citations). The paper also had an important impact on the dependability community at large by motivating others into looking at the reliability of general-purpose hardware and discovering other vulnerabilities, like Spectre and Meltdown. For these reasons, the award Committee decided to also select this paper as one of the 2024 JCL award winners".

DSN-2024 Jean-Claude Laprie Award Committee

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