

Foreword

We are pleased to bring to you the 2020 Microsystems Annual Research Report.

MTL's core mission has been to foster interdisciplinary research and education as well as strong industrial relation in microsystems and technology. MTL has maintained a wide footprint of research that encompasses broad areas of disciplines. They include nanoscale technology and materials as well as nano and microscale devices and systems. MTL's research portfolio includes a diverse array of novel devices as electronic, magnetic, field emitter, thermal, fluidic, superconducting and quantum devices, as well as integrated circuits and systems, machine learning and neuromorphic computing, biological and medical devices and systems, photonics, and energy.

Since MTL's research has been at the forefront of technology, an advanced, flexible fabrication facility has always been a critical element of MTL. In that regard, the completion of the ultramodern MIT.nano two years ago marked a new era for MTL. The availability of such an advanced, grand-scale fabrication facility is poised to dramatically improve MTL's position in cutting-edge research. It is therefore, natural that MTL has been closely collaborating with and financially supporting MIT.nano since 2016. For closer collaboration, the 2020 Microsystems Annual Research Conference was organized and sponsored jointly by MTL and MIT.nano for the first time. To go one step further, we put together the Microsystems Annual Research Report jointly between MTL and MIT.nano for the first time.

The MTL/MIT.nano joint Microsystems Annual Research Report represents a broad cross-section of the MIT community, with 90+ faculty, 121 students, postdoctoral associates, and research staff participating. As the pages ahead demonstrate, an astonishing range of insights and innovations emerge from the users of MIT's shared facilities. It is a privilege to serve this remarkable community. On behalf of the staff of MIT.nano and MTL, we offer our gratitude for the inspiration you spark in us every day. We know the innovations represented in this report will translate into impact in the world, and we are excited to see what comes next.

Hae-Seung Lee
Director, Microsystems Technology Laboratories

Vladimir Bulović
Director, MIT.nano

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