<table>
<thead>
<tr>
<th>Faculty / Supervisor</th>
<th>Email Contact</th>
<th>Research Interests (Potential PhD Project Title/Area)</th>
</tr>
</thead>
</table>
| Michael BUDIG         | michael_budig@sutd.edu.sg| • Construction design with the implementation of digital design and fabrication technologies  
                           • Parametric design  
                           • Timber construction, concrete construction, tropical architecture and construction  
                           • Material consumption                                                                                   |
| Carlos BAÑÓN          | carlos_banon@sutd.edu.sg| • Design Thinking  
                           • Architecture Practice and Parametric Design  
                           • Computation Pertaining to the Description, Generation and Construction of Architecture and Urban Environments  
                           • Digital Fabrication and Design Optimization                                                              |
| CHONG Keng Hua        | chongkenghua@sutd.edu.sg| • People-environment studies and public space design  
                           • Social sustainability and participatory community design process  
                           • Socio-cultural cognition of space and architectural representation                                        |
| Stylianos DRITSAS     | dritsas@sutd.edu.sg      | • Design Computation  
                           • Building Envelopes  
                           • Digital Fabrication  
                           • Construction Automation  
                           • Design Optimization                                                                                     |
<table>
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<tr>
<th>Faculty / Supervisor</th>
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<th>Research Interests (Potential PhD Project Title/Area)</th>
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</thead>
</table>
| Oliver HECKMANN              | oliver_heckmann@sutd.edu.sg          | • Architectural design  
• Innovative housing with focus on urban context and inclusion  
• Urban transformations  
• Frictions and revitalisation |
| Jeffrey HUANG                | jeffrey_huang@sutd.edu.sg            | • Computational Urbanism  
• Interactive Architecture  
• Smart Cities  
• Parametric Design  
• Artificial Morphogenesis  
• Design Thinking |
| J. Alstan JAKUBIEC           | john_jakubiec@sutd.edu.sg            | • Daylighting  
• Visual Comfort and Environmental Controls  
• Energy  
• Urban Sustainability |
| Sam Conrad Joyce             | sam_joyce@sutd.edu.sg                | • Design Optimization  
• Design Space Exploration  
• Digital Morphogenesis  
• Scalable and Distributed Systems  
• Data Analytics and Artificial Intelligence  
• Web Based Visualisation |
| Sawako KAIJIMA               | sawakokaijima@sutd.edu.sg            | • Computation Pertaining to the Description, Generation, and Construction of Architecture and Urban Environments  
• Design Performance and Architectural Operations Research  
• Structural Analysis and Tools |
<table>
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<tr>
<th>Faculty / Supervisor</th>
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<th>Research Interests (Potential PhD Project Title/Area)</th>
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</table>
| Felix RASPALL        | felix_raspall@sutd.edu.sg | • Design Thinking and Methods  
• Design Computation  
• Sensing technologies  
• Digital Fabrication  
• Informal and vernacular construction |
| Thomas SCHROEPFER    | thomas.schroepfer@sutd.edu.sg | • Environmental Strategies in Architecture and Urban Design  
• Climate-Responsive Design Optimisation and Integration  
• Advanced Design Methods and Building Processes  
• Innovative Building Structure and Form |
| Kenneth TRACY        | kenneth_tracy@sutd.edu.sg | • Material Simulation  
• Applied Building Information Modeling  
• Traditional/Contemporary Craft Techniques  
• Automated and Manual Construction Integration |
| Bige TUNCER          | bige_tuncer@sutd.edu.sg | • Information Architecture  
• Building Information Modelling  
• Design Learning Environments |
| YEO Kang Shua        | yeokangshua@sutd.edu.sg | • Architecture and Sustainable Design and Practice  
• Architectural Conservation and Digitisation  
• Architectural History, Theory and Criticism |
| Christine YOGIAMAN   | christine_yogiaman@sutd.edu.sg | • Material Behaviour and Logic in relation to sustainable material practice.  
• Craft in the intersection of Digital Manufacturing Technology |

*You may wish to visit the Faculty/Supervisor’s page for their latest research interests.*
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</table>
| Avinash BAJI         | avinash_baji@sutd.edu.sg | - Electrospun fibers and composites for tissue engineering applications.  
|                      |              | - Polymer fibers for multifunctional applications.  
|                      |              | - Stimuli responsive polymer fibers  
|                      |              | - Polymer nanocomposites  
|                      |              | - Self-cleaning, superhydrophobic and superhydrophilic materials |
| Roland BOUFFANAI S   | bouffanais@sutd.edu.sg | - Complexity in Engineering Systems  
|                      |              | - Complexity in Biological Systems  
|                      |              | - Complex Fluids  
|                      |              | - Complexity in Physical & Quantum Systems  
|                      |              | - Complexity & Architectural Design |
| David BRAUN          | david_braun@sutd.edu.sg | - Human-machine interface  
|                      |              | - Robotics  
<p>|                      |              | - Automation &amp; Control |</p>
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<tr>
<th>Faculty / Supervisor</th>
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<th>Research Interests (Potential PhD Project Title/Area)</th>
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</table>
| Arief Suriadi BUDIMAN        | asbudiman@sutd.edu.sg            | • Nanomaterials characterization  
                               |                                                                                                |  
                               |                                                                                           | • Nanomechanical behaviors of materials  
                               |                                                                                                |  
                               |                                                                                           | • Advanced structural and functional materials design for next generation energy technologies  
                               |                                                                                                |  
                               |                                                                                           | • Design and materials for extreme environments (energy, military, aerospace applications)  
                               |                                                                                                |  
                               |                                                                                           | • Design for reliability of advanced devices/systems (micro/nanoelectronics, energy/solar PV, etc.)  
                               |                                                                                                |  
                               |                                                                                           | • Design and integration of advanced architecture for 3D IC (integrated circuit) technologies  
| Rajesh CHANDRAMOHANADAS      | rajesh@sutd.edu.sg               | • Mechanistic understanding of Egress and Invasion of Human Malaria parasites using multi-disciplinary approaches  
                               |                                                                                                |  
                               |                                                                                           | • Characterization of host-pathogen communication systems in parasitic infections  
                               |                                                                                                |  
                               |                                                                                           | • Identification of novel drug targets and targeted design of pharmacologically active scaffolds  
| CHEN Lujie                   | chenlujie@sutd.edu.sg            | • Optical metrology  
                               |                                                                                                |  
                               |                                                                                           | • Medical imaging  
                               |                                                                                                |  
                               |                                                                                           | • Visualisation and prototyping  
| Martin L. DUNN               | martin_dunn@sutd.edu.sg          | • Mechanics and physics of materials and structures  
                               |                                                                                                |  
                               |                                                                                           | • Active materials, constitutive modelling of polymers and composites  
                               |                                                                                                |  
                               |                                                                                           | • Computational design, topology optimization  
                               |                                                                                                |  
                               |                                                                                           | • Additive manufacturing, 4D printing  
                               |                                                                                                |  
                               |                                                                                           | • Fracture and fatigue  
| Javier G. FERNANDEZ         | javier.fernandez@sutd.edu.sg     | • Material Science  
                               |                                                                                                |  
                               |                                                                                           | • Bio-Medical Engineering  
                               |                                                                                                |  
                               |                                                                                           | • Electrical Engineering  

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<th>Faculty / Supervisor</th>
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<th>Research Interests (Potential PhD Project Title/Area)</th>
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| FOONG Shaohui        | foongshaohui@sutd.edu.sg | • Mechatronics and automation  
• Electromagnetic actuation and sensing  
• System dynamics and control  
• Medical devices  
• Unmanned systems and robotics |
| Michinao HASHIMOTO  | hashimoto@sutd.edu.sg | • Bio-medical engineering |
| HUANG Shaoying       | huangshaoying@sutd.edu.sg | • Electromagnetic theories and applications  
• Magnetic resonance imaging (MRI)  
• Microwave/RF devices, antennas  
Computational electromagnetics, especially the acceleration of calculations for periodic structures  
• EM modeling for nanostructures |
| Subburaj KARUPPASAMY | subburaj@sutd.edu.sg | • Medical Imaging and Image Analysis  
• Medical Devices  
• Musculoskeletal biomechanics  
• Understanding long-term effects of physical activity / treatments in adolescents |
| Elica KYOSEVA        | elica_kyoseva@sutd.edu.sg | • Quantum control of light and matter  
• Engineering of systems for quantum information processing  
• Control in open systems  
• Quantum state engineering |
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<th>Faculty / Supervisor</th>
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<td>LIM Seh Chun</td>
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<td>• Tribology of engineering materials</td>
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<td>LOW Hong Yee</td>
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<td>• Micro and nonpatterning</td>
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<td>• Nanoimprinting</td>
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<td>• Biomimetic surfaces</td>
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<td>LUO Jianxi</td>
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<td>• Innovation and entrepreneurship ecosystems</td>
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<td>• Network analysis of complex systems</td>
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<td>• Design decision tools and methods</td>
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<td>• Deprocess optimisation</td>
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<td>• Creativity techniques</td>
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<td>Suranga NANAYAKKARA</td>
<td><a href="mailto:suranga@sutd.edu.sg">suranga@sutd.edu.sg</a></td>
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<td></td>
<td>• Wearable devices</td>
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<td><a href="http://asg.sutd.edu.sg">http://asg.sutd.edu.sg</a></td>
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<td>• Haptic interfaces</td>
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<td>• Thermal interfaces</td>
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<tr>
<td>PEY Kin Leong</td>
<td><a href="mailto:peykinleong@sutd.edu.sg">peykinleong@sutd.edu.sg</a></td>
<td>• Cu interconnects and low-k materials reliability.</td>
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<td><a href="https://sites.google.com/site/kinleongpey2012/home">https://sites.google.com/site/kinleongpey2012/home</a></td>
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<td>• Pulsed laser annealing for transistor engineering.</td>
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<td>• Nanosilicided hetero-junction wire and III-V nanowires for MOSFETs.</td>
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<td>• Nanowire-based devices for computational, memory, microbattery, photovoltaic and bio-applications.</td>
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<tr>
<td>Faculty / Supervisor</td>
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</tbody>
</table>
| Nagarajan RAGHAVAN           | Nagarajan@sutd.edu.sg    | • Material Science  
• Electronics Engineering  
• Infocomm Applications                                                                 |
| Arlindo SILVA                | arlindo_silva@sutd.edu.sg| • Design methods and techniques  
• Product design and development  
• Design Science                                                                 |
| Robert Edward SIMPSON        | robert_simpson@sutd.edu.sg| • Chalcogenide Materials Design  
• Materials Design Methodologies  
• Crystal Nanostructure Design  
• Phase Change Memory  
• Photonics  
• Chalcogenides                                                                 |
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• Analytical and Computational Kinematics  
• Robotics  
• Biomechanics  
• Personal Mobility Devices                                                                 |
| Dawn TAN                     | dawn_tan@sutd.edu.sg     | • Silicon Photonics  
• Nonlinear Optics  
• Nanophotonics  
• Optoelectronics  
• Biophotonics                                                                 |
| TAN Mei Chee                 | meichee.tan@sutd.edu.sg  | • Solution-based processing of nanomaterials  
• Multi-functional composite fabrication  
• Structure-property relationship of multi-scale composites                                                                 |
| TAN U-Xuan                   | uxuan_tan@sutd.edu.sg    | • Medical & Surgical Robotics  
• Rehabilitative Technology  
• Mechatronics  
• Micromanipulation                                                                 |
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</table>
| Pablo Valdivia y Alvarado            | pablov@sutd.edu.sg           | • Bio-inspired design  
  • Soft-under-actuated robots and sensors  
  • Modeling unsteady locomotion in fluid environments  
  • Environmental robotics                                                     |
| Erik WILHELM                         | erikwilhelm@sutd.edu.sg       | • Numerical optimisation  
  • Modelling and simulation  
  • Algorithm and system design  
  • Decision analysis                                                              |
| Kristin L. WOOD                      | kristinwood@sutd.edu.sg       | • Innovation methods  
  • Design methods and techniques  
  • Innovative technology and development                                        |
| WU Ping                              | wuping@sutd.edu.sg            | • Chemical thermodynamics/kinetics  
  • Computational quantum chemistry  
  • Materials informatics  
  • Green energy devices  
  • Biomedical devices  
  • Designer 2D-electronic structures                                               |
| YANG Hui Ying                        | yanghuiying@sutd.edu.sg       | • Low dimensional nanostructures - synthesis and applications                                                       |
| Joel YANG                            | joel_yang@sutd.edu.sg         | • Nanoplasmonics, Plasmonic Color Printing  
  • Nanofabrication at sub-10-nm dimensions: Electron Beam Lithography & Directed Self Assembly of Nanoparticles |
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<tr>
<td>YE Ai</td>
<td><a href="mailto:ye_ai@sutd.edu.sg">ye_ai@sutd.edu.sg</a></td>
<td>• Micro/nanofluidics&lt;br&gt;• BioMEMS&lt;br&gt;• Biosensing</td>
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<td>• Low-power IC Design&lt;br&gt;• Internet of Things&lt;br&gt;• Visible Light Communications&lt;br&gt;• CMOS Technology&lt;br&gt;• RF/mm-wave IC Design</td>
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<td>YUEN Chau</td>
<td><a href="mailto:yuenchau@sutd.edu.sg">yuenchau@sutd.edu.sg</a></td>
<td>• Green Communications&lt;br&gt;• Smart Grid&lt;br&gt;• Cloud / Distributed Storage&lt;br&gt;• Large-Scale MIMO&lt;br&gt;• Energy Harvesting&lt;br&gt;• Physical Layer Security&lt;br&gt;• Network Coding&lt;br&gt;• Cognitive Radio&lt;br&gt;• Machine-to-Machine (M2M)&lt;br&gt;• Cyber Physical Security</td>
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<td>ZHAO Rong</td>
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<td>• The next generation NVM technologies and applications (PCM, RRAM, Memristor)&lt;br&gt;• Bio-inspired artificial cognitive memory&lt;br&gt;• Reconfigurable devices&lt;br&gt;• Neuromorphic cognitive system&lt;br&gt;• Memristor electronics.&lt;br&gt;• MEMS</td>
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</table>
| Bikramjit DAS        | bikram@sutd.edu.sg | • Applied probability  
                        |               | • Stochastic modelling  
                        |               | • Statistical inference  
                        |               | • Risk management  
                        |               | • Social networks  |
| Costas COURCOUBETIS  | costas@sutd.edu.sg | • Economics of networks and of internet technologies  
                        |               | • Pricing, regulation policy in telecommunications  
                        |               | • Game theory  
                        |               | • Networking  |
| Georgios PILIOURAS   | georgios@sutd.edu.sg | • Algorithmic game theory  
                        |               | • Computational learning theory  
                        |               | • Multi-agent learning  
                        |               | • Dynamical systems  |
| James WAN            | james_wan@sutd.edu.sg | • Special functions  
                        |               | • Experimental mathematics  
                        |               | • Mathematical physics/chemistry  
                        |               | • Lattice sums  
                        |               | • Random walks  |
| Karthik NATARAJAN    | natarajan_karthik@sutd.edu.sg | • Operations research  
                        |               | • Optimisation under uncertainty  |
| Karthyek MURTHY      | karthyek_murthy@sutd.edu.sg | • Optimisation under uncertainty  
                        |               | • Applied probability  
<pre><code>                    |               | • Machine learning  |
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| **Lingjie DUAN**            | lingjie_duan@sutd.edu.sg          | • Network economics  
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• Network optimisation  
• Mobile telecommunication systems  
• Energy harvesting  
• Smart grid
|
| Lynette CHEAH               | lynette@sutd.edu.sg              | • Life cycle assessment methods and applications  
• Material and energy flow analysis  
• Sustainable urban transportation |
| **Nengli LIM**              | nengli_lim@sutd.edu.sg           | • Stochastic analysis  
• Rough paths theory  
• Gaussian processes  
• Neural networks  
• Deep learning
|
| Peter JACKSON               | peter_jackson@sutd.edu.sg         | • Production planning and scheduling  
• Multi-echelon inventory management  
• Supply chain management  
• Integrated production and transportation planning  
• Geographical modelling systems  
• Robust inventory optimization  
• Methodologies for design and systems engineering |
| **Selin Damla AHIPASAOGLU** | ahipasaoglu@sutd.edu.sg           | • Nonlinear optimisation  
• Sparse learning  
• Theoretical computer science  
• Algorithmic game theory |
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</table>
| Shaowei LIN          | shaowei_lin@sutd.edu.sg | • Algebraic geometry  
                        • Statistical learning  
                        • Neural networks  
                        • Homotopy type theory  
                        • Internet of Things |
| Shrutivandana SHARMA | shrutivandana@sutd.edu.sg | • Optimisation  
                        • Decentralised decision making  
                        • Mechanism design  
                        • Game theory  
                        • Supply chain coordination and risk management  
                        • Inventory management  
                        • Online advertising  
                        • Social networks |
| Stefano GALELLI      | stefano_galelli@sutd.edu.sg | • Water resources management  
                        • Water systems analysis  
                        • Hydropower operations  
                        • Statistical learning  
                        • Optimisation and control |
| Ying XU              | xu_ying@sutd.edu.sg | • Stochastic modelling / queueing theory  
                        • Game theory / Incentive / contract design  
                        • Service operations management  
                        • Socially responsible supply chain management  
                        • Renewable energy demand-side management |

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# INFORMATION SYSTEMS TECHNOLOGY AND DESIGN (ISTD) PILLAR

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<th>Research Interests (Potential PhD Project Title/Area)</th>
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</table>
| Alexander BINDER                     | alexander_binder@sutd.edu.sg          | • Explainable deep learning  
• Machine learning  
• Computer vision  
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| David YAU                            | david_yau@sutd.edu.sg                 | • Network security and privacy  
• Cyber physical system security and privacy  
• Networking and wireless sensor networks  
• Smart grid and demand response |
| Dorien HERREMS                       | dorien_herremans@sutd.edu.sg          | • Digital music  
• Audio  
• Machine learning  
• Artificial intelligence |
| Ernest CHONG                         | ernest_chong@sutd.edu.sg              | • Machine learning  
• Deep learning  
• Semi-supervised and unsupervised learning  
• Hyperparameter optimization  
• Artificial intelligence |
| Hyowon LEE                           | hlee@sutd.edu.sg                      | • Human-computer interaction  
• Interaction design  
• Emerging interactivity  
• Usability engineering  
• Lifelogging |
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<td>• Theoretical machine learning</td>
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<td>• Graphical models and MCMC methods</td>
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<td>• Dynamical systems</td>
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<td>• Cyber-physical system security</td>
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<td>• Mobile and wireless security</td>
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<td>Kwan Hui LIM</td>
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<td>• Data mining</td>
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<td>• Image/Video/Signal processing and analysis</td>
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<td>• AI for healthcare, cyber security</td>
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<td>Oliver WEEGER</td>
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<td>• Computational engineering</td>
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<td>• Computational mechanics of solids &amp; structures</td>
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<td>Faculty / Supervisor</td>
<td>Email Contact</td>
<td>Research Interests (Potential PhD Project Title/Area)</td>
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<td>-----------------------------------------------------</td>
</tr>
</tbody>
</table>
| Pawel SZALACHOWSKI   | pawel@sutd.edu.sg | • Blockchain  
• Network security  
• Systems security  
• Applied cryptography |
| Sudipta CHATTOPADHYAY | sudipta_chattopadhyay@sutd.edu.sg | • System security  
• Embedded and cyber-physical systems  
• Formal methods and verification  
• Software engineering |
| SUN Jun              | sunjun@sutd.edu.sg | • Formal methods  
• Software engineering  
• Program analysis  
• System verification  
• System security |
| Tony QUEK            | tonyquek@sutd.edu.sg | • Big data processing  
• Network intelligence  
• IoT  
• Wireless communications and networking  
• Security |
| Wei LU               | wei_lu@sutd.edu.sg | • Machine learning  
• Deep learning  
• Natural language processing  
• Big data analytics  
• Data mining  
• Artificial intelligence |

*You may wish to visit the Faculty/Supervisor’s page for their latest research interests*
### SCIENCE AND MATH

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<th>Faculty / Supervisor</th>
<th>Email Contact</th>
<th>Research Interests (Potential PhD Project Title/Area)</th>
</tr>
</thead>
</table>
| Ricky ANG            | ricky_ang@sutd.edu.sg | - Plasma  
- Electron beam  
- Quantum diode  
- Quantum plasmonic  
- Novel material-based devices |
| Cai KUI              | cai_kui@sutd.edu.sg | - Coding Theory  
- Digital Communications |
| Dario POLETTI        | dario_poletti@sutd.edu.sg | - Many-body quantum dynamics  
- Ultracold atoms physics  
- Classical and quantum thermodynamics at the nano-scale  
- Computational quantum physics |
| YANG Shengyuan       | shengyuan_yang@sutd.edu.sg | - Condensed Matter Physics  
- Topology in Solid State Physics  
- Material Physics  
- Transport Modeling and Theory  
- Spintronics, Magnetic Devices |
| CHEN Jer-Ming        | jerming_chen@sutd.edu.sg | - Voice  
- Music  
- Audio AI  
- Acoustics |
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<tr>
<td>Desmond LOKE</td>
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<td>• Nanotechnology&lt;br&gt;• Electrical Engineering&lt;br&gt;• Material Science&lt;br&gt;• Bio-Medical Engineering&lt;br&gt;• Chemical Physics</td>
</tr>
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<td>LIU Xiaogang</td>
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<td>• Fluorescence&lt;br&gt;• Photochemistry</td>
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<td>Qi GE</td>
<td><a href="mailto:ge_qi@sutd.edu.sg">ge_qi@sutd.edu.sg</a></td>
<td>• Mechanical Engineering&lt;br&gt;• Material Science</td>
</tr>
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