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Dear Hiring Manager,

I am a Chemical Engineering student at Nanyang Technological University, specializing in Machine Learning and Data Analytics, with a strong focus on semiconductor process engineering. My academic research and industrial experiences have provided me with hands-on expertise in **lithography process optimization, defect analysis, and root-cause investigation**, which I am eager to apply to advance semiconductor manufacturing yield and quality.

My journey in semiconductor process engineering began with my **URECA research project**, where I optimized 3D SU-8 microstructures using maskless lithography. By systematically tuning **photoresist coating, exposure, and post-exposure bake parameters**, I reduced microstructure sizes to 27 μm and improved fabrication efficiency by 20%. This project honed my ability to analyze process parameters quantitatively, correlate them with wafer outcomes, and apply corrective actions to improve yield.

During my internship at **Skyworks Solutions Inc.**, I translated this process knowledge to a **high-volume manufacturing environment**. I led initiatives to detect and analyze process deviations, performing **root-cause analysis of defects using machine learning and statistical methods**. My work automated scrap case reviews, built Power BI dashboards with text analytics, and uncovered hidden mishandling cases, ultimately reducing losses by \$300K and achieving a 95% closure rate for process improvements. I collaborated closely with process engineers to **monitor photolithography, etching, and other critical steps**, developing actionable optimization strategies based on real-time data.

At **Keppel Corporation**, I further strengthened my data analytics and automation skills, rebuilding relational databases, implementing predictive linear regression models, and automating PDF data extraction. These experiences reinforced my ability to apply **data-driven approaches to complex operational problems**, a skill directly transferable to semiconductor process control.

I am proficient in **Python, SQL, MATLAB, and machine learning tools (Random Forest, PyTorch, Scikit-Learn)**, and have hands-on experience with **SEM microscopy, wafer fabrication, and process characterization**. I am particularly excited to apply these skills to analyze faulty process outcomes, optimize critical parameters, and implement strategies that drive **higher yield, improved quality, and process innovation**.

I would welcome the opportunity to contribute my **process engineering knowledge, defect analysis expertise, and data analytics skills** to your team and help advance semiconductor manufacturing capabilities. Thank you for considering my application.

Sincerely,

Kok Yang