**Professional Summary**

Sung Jin Kil

**Sunnyvale, California 94085**

**Cell: +82-10-5026-9180**

**E-Mail:** [**sjkil34@icloud.com**](mailto:sjkil34@icloud.com)

**Product Design Engineer-VR/AR/Audio**

* Highly technical, multi-disciplinary, and fast paced **Mechanical Engineer/New Product Program Manager** having responsible ownership of display product assembly manufacturing, new display design engineering, and TV/monitor/mobile /laptop automation solutions for display module MP.
* Hands-on interdisciplinary skills in display hardware development with architectures’ & new module design validation abilities for the initial display module process as a focal player of New Module Technology Development to support all aspects of build for prototyping.
* Collaborative engineer continually focused on the display product and the module process of Phone/**t**ablet/ laptop/wearable throughout demonstrating to executives for launching new display & optical module, achiev ing the best solution by concept design/tolerance/thermal evaluation, and developing better manufacture & operation management for issues with vendors for building pilot plant and engineering change requests after PDV being included with module technology issues.

# Recently having work experiences with product design engineers for new development of Facebook-techn ologies Ray-Ban glasses product.

* Based out in California will be available for interview with 24- 48 hrs prior notice period and needs GC-EAD extension period to join.

**Education**

* Bachelor of Engineering in Mechanical Engineering, 2000 Korea University, Seoul

**Skills**

* CAD – NX/Solidworks/ProE/Autodesk
* Opto-Mechanical Design
* Industrial automation
* Manufacturing Design
* Design for Assembly – Tooling/Fixtures
* New Product Development (HW/SW)
* Hypermesh/MCAD Development
* FEM model test/Linux OS/FreeMat
* Structural Analysis/ANSYS/Abaqus
* Robot Control

**Professional Experience Facebook| Jan 2023 – Current**

**Samsung Display/Electronics - Display R&D Centre | Jun 2009 – Dec 2022 San Jose, CA**

**Product Design Engineer| Jan 2023 – Feb 2023**

* Provide improvement ideas of cable test fixture of Meta AR based smart glasses (Ray Ban), concept ideas of new product (SN gen2 Model) to improve the field failure of Ray Ban shop, and design new concept about assembling the USB cable of new smart glasses.
* Currently, plan the development of the smart pole (Intelligent pole) system for preparing Smart city with smart technology (VR), do sourcing companies of products such as Air quality sensor, LED Display & street lighting, Camera, and Wireless IoT device with also introducing the edge detection algorithm of potholes on the road by using MATLAB.
  + Key Accomplishments:
* Designed plastic mould of smart glasses with mechanical design engineers for overseas OEM electronics manufacturing with industrial design, cameras, sensors (magnetometers, IMUs, capacitive, etc), PCBs and flexes, silicon, antennas, batteries, thermals
* Design Lighting Pole Product and fixing structures of Smart devices by being based on structural dynamic, Compare the way to application of Sheet Metal forming (Pipe) and Aluminium Extrusion.
* Develop the technologies of potholes detection and heating cable thermal optimal design with vendors.

# Display Manufacturing Technology Consultant (From LCD to OLED) | April 2018 – Dec 2022, July 2023 –

* Advised the suggested project from clients.
* Reviewed the contents of questionnaires for anonymous clients and answered each question with help from a GLG system.
* Arranged the available time one or two weeks later or rejected the forward going to get an appointment.
* Proceeded with the manufacturing related with Module Equipment and Front-end Equipment by the paid phone consulting of the hourly rate.
  + Key Accomplishments:
* Research for the market of Micro-optical Lenses in Optical Communications.
* Reviewed Haptic technologies, leading players in the Gaming Digital Ads Industry, and building strategies about mid-to-high-end Brands in Consumer Electronics.
* Support of selecting suppliers for mini-led TV and the Global Market of TV Factory Automation project.
* Mechanical Engineer (Barcodes) - Litigation Consulting, and Optical Module Design for laser welding application.
* Done Materials Used in LCD and QD Films (Specialty Films Manufactures), Display Panel Technology Trends (Industrial Manufacturing Firm) project.
* Done Handset Display Industry | LCD to OLED Transition (Investment Management Firm) project.
* Done OLED Panels | Overview of Manufacturing (Investment Management Firm), OLED | Industry Overview (Investment Management Firm) project.
* Done OLED Smartphone Displays | Current Trends (Investment Services Firm), LCD Display Glass Panel maker (Professional Services Firm) project.
* Done Micro LED & Flexible Display (Professional Services Firm), OLED Industry | Overview (Investment Management Firm) project.
* Done Interactive Flat Panel Display Market | Resellers Perspectives (Investment Management Firm), Factory Automation Market | Global (Professional Services Firm) project.
* Done Semiconductor Manufacturing | Magna chip (Investment Management Firm), Micro LED Display Technology

| Die and Wafer Bonding (Equipment, Services, and Software company) project.

* Done Surface Vision | Continuous Manufacturing | Customers (Professional Services Firm) projects.
* Trend & current competitor of DDIC Technology.

# Senior Manager | Jun 2016 – March 2018

* With MES (Manufacturing Execution System), took ownership of two or three product lines to solve manufacturing quality issues about mechanical injection moulding & sheet metal parts and to launch NPI (smooth transition of designs into production) supporting to prepare SOP documents.
* Held accountable for management of display performance, glue dispensing in building new LCD medical monitors including also supplier capabilities in providing injection moulding parts, sheet metal parts, in providing sheet metal parts about the back cover, aluminium extrusions in building new educational interactive screens, and in providing aluminium die castings, cover glasses, thin etching panels, services of polarizer film attachment, touch sensor lamination, ITO sputtering utilized in building new curved gaming displays.
  + Key Accomplishments:
* Proven track record of sustaining engineering plan for the mechanical mould & die design and productivity validation process from support of new prototype building to launching new products.
* Learned new products, new concepts, new technologies before starting NPI process about new touch sensors, new cover glass, reviewed solution of problems for gluing curved glasses, and supported for preparing the readiness of suppliers’ capability by establishing KPIs through building pilot production with also helping postproduction issues correcting blueprints as senior system engineer.

# Principal Engineer (Mechanical Design Engineer) | July 2015 – Jun 2016

* Planned timelines for mechanical and software development of the wet blasting equipment for metal inserts. Delivered project ownership within a customer, a university, control engineers, and suppliers.
  + Key Accomplishments:
* Spearheaded the safety design of a key nozzle shape of a wet blasting of metal inserts for plastic mould & metal forming die machining.
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* Supported design in the lamination system development of a touch sensor and a glass.
* Mentored novice engineers.
* Validated 2D layout designs of the OLED Touch Panel lamination machine for customer’s requirements.
  + Key Accomplishments:
* Pre-checked a lamination system utilized in attaching touch sensor, glass, optically clear adhesive, panel before building in Vietnam.
* Supported conversion 2D drawings to 3D CAD drawings of Mobile OLED display sub-lamination system.

# Mold Technology Team Senior (CAM/Moldex3D) Engineer| June 2009 – Jun 2015

* Had responsibility about injection mould analyses and mould/die design of LCD module mould frame including coupled stress, thermal assessment, dynamic, and stability problems.
* Updated LCD module mould frame design during developing TV/Laptop/Tablet display system architect including chip architects, display subsystem architects, developing TV display module structures, and developing display module manufacturing technologies by conversion key design parameters to Sub-system top-down skeletons and EDA tools.
* Improved plastic and sheet metal design by mechanical, electronic design, and reliability simulation about thermal and structural for TV display drive IC COF Packaging, Laptop display drive IC Silicon Packaging, and Tablet display Flex circuit Package for display module development.
* Customized ProE Creo using Pro/toolkit libraries or transferred 3D tetra-FEA models to 3D printing formats through Programming Languages for comparisons between various solid 3D CAD models.
* Designed a vacuum chamber of 6G PECVD equipment for the IT OLED with an equipment company through various sign-off processes, and activities including structural and dynamic analyses (NVH, Noise, Vibration, and Harshness) of the vacuum chamber about 6G IT OLED PECVD for improving the uniformity, the life reliability, and the encapsulation process for the substitutive of encapsulation glass.
  + Key Accomplishments:
* Designed and developed new LCD TFT/Packaging/Module plastic frame mould through injection mould analyses including coupled structural problems with loads development, dynamics, stress, stability, fatigue and thermal assessment about bottom Chassis, top Chassis, and frame mold.
* Designed LCD Monitor Module box packaging by developing honeycomb FE material model for paper shapes to analysis a non-linear structural problem.
* Designed a vacuum chamber of new 6G IT OLED PECVD equipment during simulating the plasma process with senior engineers in cross-functional teams through modelling for structural dynamic analyses for a susceptor, a diffuser, and a vacuum chamber for introducing new encapsulation process technologies forming organics layer films for the substitutive of encapsulation glass followed by Inkjet Printing process for inorganics multi- layer films.
* Designed a vacuum chamber of encapsulation process equipment for the improvement of its process quality through the new building of the 6G PECVD equipment including with developing a FEM to visualize appropriate behaviour of complex non-linear problems.
* Supported vendors with ProE Creo CAD system using Pro/Toolkit software through comparing the changes between 3D mould CAM designs and plastic mould 3D designs of vendors with a sigma BB project.
* Supported vendors with equipment for consistently enhancing mould flow results and decoupling structural issues by measuring the temperature of the TV panel prototype, the thermal properties of all the optical sheet prototype materials, and the convection coefficient around TV modules prototypes.
* Managed silicon chip vendors by enabling TV display driver IC COF PKG, Laptop display driver IC Silicon PKG, and Tablet circuit Flex Packaging design verification including with TFT panel & PCB layout electric designs for display module test and display silicon packaging test.
* Managed display silicon vendors by automating TV/Laptop/Tablet display system architect utilizing major key design parameters for chip architects, display subsystem architects, display module architects, and display manufacturing vendors.

# Samsung Electronics – Global Manufacturing Technology Centre | Mar 2006 – May 2009 Mold Technology Team DFX Technology Part Senior Engineer

* Led a tooling (injection mould & die) design of plastic & sheet metal units such as a Tub Drum, a Laser Scanning Unit, and a Magnetron of Consumer products including a 10kg washing machine, a laser multifunction printer, and a microwave for improving assembly productivity through simple designs.
* Planned metal spinning die & injection mould design for improving washing machine assembly operations (SOP) included with suppliers’ by simplifying washing machine structures, secured directions, screws, secured ways, and etc for the front hinged door, the frame, the tub, and the suspension system for budgeting tooling cost with cross-functional teams.
* Developing an hour public presentation about sheet metal processing parameters of a bottom chassis such as notching, piecing, punching, bending, dimpling, and louver forming for pursuing better productivity, quality, and carbon neutral of 60-inch PDP TV in the early stages independently.
* In China, led a tooling (injection mould & die casting) design of plastic & metal mechanical materials about audio systems, HVAC systems, hard disks, laser printers, and drum washers, and provided mould technicians of vendors with materials properties knowledge by solving troubleshooting of technical problems as a simulation engineer, before mainly releasing new consumer product structures for developing assembly manufacturing and lamping up a pre-production of new product design.
* Led automation of assemble for products, through analysing tolerance of 3D structures, about drum washer, by utilizing CAM software serving as an independent mould design engineer for productivity, quality, and environment.
  + Key Accomplishments:
* Planned injection mould design and designed both mould and die including the frame, the tub, the suspension system, and the front door of Samsung washing machine for improving assembly process, moulding process, and process optimization.
* Finally, improved productivity of the production line through design for the assembly about plastic of all models, by the ways how better the productivity of each process and agreeing with vendors to clarify issues of new material introduce, manufacturing development, and technology changes on total cost ownership.
* That was, prepared for the mould design of both new product and olds, resulted in better productivity of assemble line, and managed vendors through trade-offs between new product quality and old product productivity on the production line by scientific research about plastic manufacturing conditions for current mass production parts before new product launching.
* Developed the DRI manufacturing line transfer from the conveyor manufacturing line by applying easy assemble product design to various, small batch plastic products and moulding process sites with vendors after validating new plastic mould design with Six Sigma & FMEA.
* Analysed movements of cooperative robots during assembling parts, planned injection mould designs, budgeted the tooling cost, and designed a product to improve mould designs for new product and olds by analysing of mould flow result.
* Analysed workers’ movement during assembling parts included from material logistics processes to a final packaging process about current mass production products, planned injection mould designs, budgeted the tooling cost, and designed a product to improve mould designs for new product and olds by validating them as mould flow results.
* Developed manufacturing through development of robot systems integration as needed.

# Samsung Electronics - Mechatronics Centre | May 2004 – Feb 2006 Robot System Development Team Engineer (System Engineer) Austin, Texas

* Support leading the development project of the mobile LCD Auto Optical Inspection system delivering vision system and Servomotors by participating in weekly meetings with the suppliers to simulate the reliability of the system, troubleshooting equipment’s reliability issues and holding accountable for an early-stage layout design of the AOI tester.
* Support completing the development of a new automation system for the PECVD semiconductor Fab equipment by improving our Equipment Front End Module, taking 2D CAD part drawings, then advising updates to the final drawings, by improving the BOM of prototypes, coordinating scheduled launch timelines in collaboration with manufacturing technicians to release project requirements, and operating new PECVD assembly of the semiconductor factory line with timely delivery.
  + Key Accomplishments:
* Support developing project of the 8G Fab stocker system, to make an evaluation schedule, to evaluate the new system by performing measurements of system control functions using a laser tracker, making documents, also simulating the bottom vibration induced by the 7G Fab stocker system in the clean room facility with LMS Test Lab, and developing extrusion technologies of rail system by production of prototype about new rail section.
* Supporting effectively developing the mobile LCD Auto Optical Inspection system by coordinating cross- functional teams by CAD design proposals and before introducing five mobile LCD AOI systems on the mass production line, I set up one prototype equipment and assisted to improve the product design for totally launching up to six systems.
* Built prototype designs of the probe system with tolerance simulations of a mid-size LCD panel.
* Support acquiring S Mark (Environmental Safety Management Standards) certification for the mobile LCD AOI system.
* Support developing technically new development of the LED safety light curtain of the EFEM (Equipment Front End Module) system with OEM suppliers.
* Showed up, apprehended, and converted customer requirements into system specification.
* Completed design drawings, obtained drawing approval, and released to production of a new sub-systems or their improvement design.

# ILJIN Nanotech | Jan 2002 – Apr 2004 Seoul Korea

**Optical Communication Component Research/Process Engineer**

* Supported developing 10Gb optical transceiver module assembly packaging process through thermal analysis by using I-DEAS 3D CAD, supported Active alignment processes setup of Laser welder through designing fixtures by using I-DEAS 3D CAD, and supported the setup of flip/chip die bonder through designing aspherical lens tray by using I-DEAS 3D CAD.
  + Key Accomplishments:
* Built a prototype design and launch process of 10Gb optical transceiver module assembly packaging.