Jangseon Park

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Interests

Software Architecture,	**SW/HW Co-Design,**	**Processing In Memory**
Hardware Design,	**Solid-State Drive**	**Near Storage Processing**

Education

The University of California, SanDiego (UCSD)   Sep. 2023 – Current
Doctor of Philosophy in Computer Science and Engineering   *California, The United States*
Research Areas: Processing In Memory and Near Storage Computing
Advisor: Tajana Rosing

Korea Advanced Institute of Science and Technology (KAIST)   Mar. 2015 – Feb. 2017
Master of Science in Electrical Engineering   *Daejeon, Republic of Korea*
Thesis: "RGB-IR color filter algorithm and memory-efficient hardware architecture for the 4-color sensor."
Advisor: Chong-Min Kyung

Kwangwoon University   (including 2-years military service) Mar. 2010 – Feb. 2015
Bachelor of Science in Electrical Engineering   *Seoul, Republic of Korea*
Cumulative: 4.4/4.5
Graduated Summa Cum Laude

Awards & Honors

Academic Scholarship for Overseas Ph.D Course – Full Funding
Samsung Electronics   *2023 – 2027*
Third Prize, Process Design Contest(Group)
Head of Center (EVP), Samsung Electronics   *2022*
CEO Incentive Awards(Individual)
Head of Business (President), Samsung Electronics   *2021*
Best Innovation Awards(Group)
Head of Team (SVP), Samsung Electronics   *2020*
First Penguin Innovation Awards(Group)
Head of Business (President), Samsung Electronics   *2019*
Samsung Electronics Scholarship
Samsung Electronics   *Fall. 2016*
Korea National Scholarship
Korean Government   *2015 — Spring. 2016*
Third Prize, Kwangwoon IT Exhibition
Kwangwoon University   *2014*
Undergraduate Scholarship (Merit-based) - seven semesters
Kwangwoon University   *Fall. 2009, 2012 – 2014*

Work Experience

Samsung Electronics Co., Ltd.,   Feb. 2017 – Present
Senior Engineer, Solution Development Team   *Hwaseong, Republic of Korea*

• Researched and developed SSD solutions and software platforms
• The on-site optimization method for SSD
  * Software solution that supports installation of SSD with the optimized condition for each data centers environment
  * As lead developer, designed and developed a firmware for the solution with 10+ coworkers
  * Unveiled at Open Compute Project(OCP) Global Summit, San Jose, California, Oct 18–20, 2022
  * Wrote patent: "Training method of the memory device and electronic device and electronic system including the same," Unites States Patent No. US 11,461,113, B2, Oct 4, 2022
  * Where to use: Next Generation SSDs

• The DRAM defense code solution
  * Software solution that predicts DRAM errors and carries out a hidden repair in advance
  * As lead developer, designed and developed a firmware for the solution with eight coworkers
  * Effect: Increasing Quality of Service(QoS) of SSD because the host receives services continuously without recognizing errors
  * Wrote patent: "Method of controlling repair of volatile memory device and storage device performing the same," Unites States Patent No. US 11,301,317, B2, April 12, 2022
  * Where to use: Next Generation SSDs

• The DRAM revival solution
  * Software solution that diagnoses and repairs SSD that has DRAM defects
  * Developed a firmware for the solution with five coworkers
  * Effect: Increasing serviceability of SSD because a user can self-repair with this solution
  * Where to use: Data centers that have used Samsung's SSD

• The software platform for DRAM spec management(LPDDR4/DDR4/LPDDR5)
  * As a software architect, designed and developed a software platform that manages DRAM JEDEC specifications to control the DRAM controller and DRAM phy HW IP
  * Effect: Increasing development efficiency because developers who are not familiar with DRAM specifications can develop SSD firmware by using the platform
  * Where to use: All SSD product firmware developed in Samsung

• The software platform for hardware components test in SSD(DRAM/SRAM/PCIe/NAND/HW)
  * As a software architect, designed and developed a software platform with which the developer makes the SSD test firmware
  * Effect: Increasing development efficiency because new developers who do not know the history and know-how about test methods can easily develop the test firmware by using the platform
  * Where to use: All SSD test firmware developed in Samsung

• Introduced a new development & management culture (OKR & agile development method)
  * As a project manager, led the new project with the agile development method with 10+ coworkers

• Setup and managed software development process tools
  * Setup software engineering tools such as JIRA/Bitbucket/Crucible to introduce TiDD(Ticket Driven Development) process in my team (team members 350+)

Samsung Electronics Co., Ltd.,   Jun. 2016 – Aug. 2016
Research Intern, Software Development Team   *Hwaseong, Republic of Korea*
• Verified a data compression IP for SSD with FPGA

Research Experience

Korea Advanced Institute of Science and Technology(KAIST)   Mar. 2015 – Dec. 2016
Advisor: Chong-Min Kyung   *Daejeon, Republic of Korea*
• The Demosaicing algorithm for the RGB-IR 4-color filter of the image sensor

  ∗ Researched and developed Demosaicing algorithm for the Red/Green/Blue/Infra-Red color filter of
    CMOS Image Sensor(CIS)

• Memory Efficient Hardware Architecture for the Demosaicing Algorithm

  ∗ Designed the soft IP with memory usage optimization for the Demosaicing algorithm
  ∗ Reduced SRAM memory usage by 45 percentages, compared to initial design
  ∗ Completed Verilog HDL coding, logic synthesis, and FPGA verification

• Validation of the Image Signal Processor(ISP)

  ∗ Verified the function of the Image Signal Processor that includes 13 sub-IP blocks for image processing
    with FPGA(with UMC110nm process library)

Kwangwoon University   Mar. 2014 – Dec. 2014
Advisor: Dong-Wook Kim   *Seoul, Republic of Korea*
• Obstacle detection and warning system for the visually impaired people

  ∗ Researched and developed an image signal processing algorithm for obstacle detection with depth images
  ∗ Received the third prize in the Kwangwoon IT Exhibition contest(KWIX)

Teaching Experience

Samsung Electronics Co., Ltd.,   2020 – Present
Instructor, Software Engineering   *Hwaseong, Republic of Korea*
• Every year, conducted a lecture on firmware structure and firmware development process to improve
the working performance of new employees
• Every year, created and proceeded with an On-the-Job-Training program for half a year for new
employees

Korea Advanced Institute of Science and Technology(KAIST)   Fall. 2015 – Spring. 2016
Teaching Assistant, Electrical Engineering   *Daejeon, Republic of Korea*

Publications & Patents

Book chapter

• Hyun Sang Park, Young-Gyu Kim, Yeongmin Lee, Woojin Yun, Jinyeon Lim, Dong Hun Kang,
Muhammad Umar Karim Khan, Asim Khan, **Jangseon Park**, Won-Seok Choi, Youngbae Hwang, and
Chong-Min Kyung, "Depth Estimation Using Single Camera with Dual Apertures," *Smart Sensors at the
IoT Frontier(Springer)*, pp.167-189, May. 2017

Publications

• **Jangseon Park**, " 4-color interpolation algorithm and memory-efficient hardware architecture for 4-color sensor," *Korea Advanced Institute of Science and Technology*, Master's Thesis, Feb. 2017
• Lee Yong Seok, Jeon Kyung Bin, Kang I Seul, **Jangseon Park**, Kim Bo Ra, Seo Young Ho, and Kim Dong Wook, "Obstacle Detecting and Warning System For Visually Impaired," *The Korean Institute of Communication Science Conference*, pp.300-301, Jan. 2015

Patents

• **Jangseon Park**, Jongun Kim, Juchan Lee, Dong Kim, Inhoon Park, Hyunglae Eun, "Training method of memory device and electronic device and electronic system including the same," *Unites States Patent No. US 11,461,113, B2*, Oct 4, 2022
• Dong Kim, Inhoon Park, **Jangseon Park**, Hyunglae Eun, "Method of controlling repair of volatile memory device and storage device performing the same," *Unites States Patent No. US 11,301,317, B2*, Apr 12, 2022

Professional Training

Agile Management Coaching   Aug. 2022 -– Oct. 2022
Agile Expert, Jaewang Lee
  • Worked as an agile manager in the team and received an agile coach once a week from the agile expert

Team Kanban Practitioner Certification   Aug 22. 2022
Kanban University
  • Acquired the certification on behalf of the team to introduce an agile method

ICAgile Certified Professional Certification   Jul 28. 2022
ICAgile
  • Acquired the certification on behalf of the team to introduce an agile method

ISTQB CTFL Certification   Mar 30. 2018
ISTQB
  • Acquired the certification related to software testing method

Computer Sklls

Programming: C/C++, Python, ARM Assembly, Verilog HDL
Software Engineering Tools: Jira, Git(Bitbucket/Github/GitLab), SVN, Crucible, Google Test Framework
Debugging Tool: Trace32

Other

Military Service   Mar. 2010 -– Dec. 2011
Republic of Korea
  • Served as a signaller in artillery

  • Discharged as a sergeant