

# Curriculum Vitae

updated @2 February 2024

## PERSONAL

Name Jehyun Lee (이제현, 李濟鉉)  
 Born 24. Feb. 1979, Seoul, Republic of Korea

e-mail [jehyun.lee@gmail.com](mailto:jehyun.lee@gmail.com)  
 Github <https://github.com/jehyunlee/>  
 Blog (Tech) <https://jehyunlee.github.io/>  
 Blog (Book) <https://jehyunlee.tistory.com/>



## SUMMARY

### Education - 2 Ph.D degrees

- (1) Materials Sci. & Eng. (Seoul Nat'l Univ., 2008).
- (2) Solid State Physics (Vienna Univ. of Tech. 2011)

### Achievements

- (1) Author of 46 SCI papers, 45 International Conferences and 2 Books (2004~)
- (2) 13 Patents and 2 Software Copyrights (2013~)
- (3) 36 Awards given for SCI Journal publications, Conference, Companies and Societies (2010~)
- (4) 28 Community Activities for Academic Societies and IT Communities (2004~)



1994.03	1997.03	2001.03	2008.09	2011.09	2013.01	2013.10	2017.03	2018.01
High School	Bachelor	Integrated Master & Ph.D	Ph.D	Research Prof.	Senior Researcher	Senior Engineer	Principle Engineer	Senior Researcher
		Materials and Devices researcher				Data Scientist		
• Chemistry	• Materials Sci. & Eng.	• Spin device fabrication • Magnetic materials simulation • Image Processing	• Electron microscopy	• Nanoparticle simulation	• Magnetic materials	• MRAM • 3D NAND • Platform TF • Big data TF	• Data-driven engineering • AI TF	• Renewable energy • Research platform • Energy material



## APPOINTMENTS

---

- Korea Institute of Energy Research**, Daejeon, Korea **1/2018 – Present**  
Leader, Principal Researcher (Energy AI & Computational Science Laboratory) 7/2023 – Present  
Principal Researcher (Computational Science & Engineering Laboratory) 3/2023 – 7/2023  
Senior Researcher (Platform Technology Laboratory) 1/2017 – 2/2023  
Data Science: Renewable energy research, Intelligent Automation,  
and Research Data System Construction
- Samsung Electronics**, Suwon/Hwaseong, Korea **1/2013 – 12/2017**  
Senior Engineer (Semiconductor R&D Center) 10/2013 – 2/2017  
Principal Engineer (Semiconductor R&D Center) 3/2017 – 12/2017  
Development of Memory Devices: MRAM, 3D NAND  
Process TCAD: Deposition/Etch/Epi. Growth/Sigma Etch  
3D Visualization of Semiconductor Devices: DRAM/3D NAND/Logic/CIS  
3D Modeling of Semiconductor Devices: DRAM/3D NAND/Logic
- Research Staff Member (Samsung Advanced Institute of Technology) 1/2013 – 9/2013  
Assigned in permanent magnet development project.  
Samsung Electronics
- Seoul National University**, Seoul, Korea **9/2011 – 12/2012**  
Research Assistant Professor  
Under supervision of Prof. **Sang-Koog Kim**  
Financially supported by Creative Research Initiative Program,  
National Creative Research Initiative Center for Spin Dynamics and Spin-Wave Devices.
- Vienna University of Technology**, Vienna, Austria **9/2008 – 8/2011**  
Research Assistant  
Under supervision of Prof. **Josef Fidler**  
Financially supported by the European Framework Programme 7 project  
TERAMAGSTOR.

## EDUCATION

---

- Ph.D. course at Vienna University of Technology**, Vienna, Austria **9/2008 – 6/2011**  
Institute of solid state physics  
Studying at Advanced Magnetism Group. (Prof. **Josef Fidler**)  
Research Theme: Study on magnetic recording media using TEM and micromagnetics  
Thesis title: "Inhomogeneous magnetization processes in advanced recording media"
- Integrated Master and Ph.D. course at Seoul National University**, Seoul, Republic of Korea **9/2001 – 8/2008**  
School of Materials Science & Engineering, Department of engineering  
Studying at Lab. of Materials Deformation and Processing. (Prof. **Kyu Hwan Oh**)  
Research Theme: Micromagnetic Simulations of magnetic recording media  
Thesis title: "A study on the effect of the convex grain surface on the magnetic behavior from the viewpoint of magnetic recording"
- Bachelor course at Seoul National University**, Seoul, Republic of Korea **3/1997 – 8/2001**  
School of Materials Science & Engineering, Department of engineering  
Thesis title: "Mechanical Behaviors of DLC/W multilayer"
- Incheon Science High School**, Incheon, Republic of Korea **3/1994 – 2/1997**

## BOOKS (2)

---

### 2024

1. 정용진, 권오준, 이동훈, **이제현**, 강지명 (equally contributed)  
"스마트 에너지 인공지능 SW 분석가", 한국생산성본부 (2024.01.15.) ISBN 9788937102080

### 2023

2. 권정민, 권시현, 김영민, 김진환, 박준석, 변성윤, 이정원, 이진형, **이제현** (equally contributed)

## **PUBLICATIONS ON SCI JOURNALS (46)**

---

### **2023**

1. Jihoo Jung, **Jehyun Lee**, (*Jihoo Jung and Jehyun Lee are equally contributed*)  
Sangjin Choi and Woonho Baek  
"Information Analysis on Foreign Institution for International R&D Collaboration Using Natural Language Processing", *Energies* **16**(1) 33 (2023) <https://doi.org/10.3390/en16010033>.

### **2022**

2. Myeongchan Oh, **Jehyun Lee**, Jin-Young Kim, Hyun-Goo Kim  
"Machine learning-based statistical downscaling of wind resource maps using multi-resolution topographical data", *Wind Energy* (2022) <https://doi.org/10.1002/we.2718>.

### **2021**

3. Sung Jun Hong, Hoje Chun, **Jehyun Lee**, Byung-Hyun Kim, Min Ho Seo, Joonhee Kang and Byungchan Han  
"First-Principles-Based Machine-Learning Molecular Dynamics for Crystalline Polymers with van der Waals interactions", *The Journal of Physical Chemistry Letters* **12** (2021) 6000.
4. Hyeon-Kyu Park, Jae-Hyeok Lee, **Jehyun Lee**, and Sang-Koog Kim  
"Optimizing machine learning models for granular NdFeB magnets by very fast simulated annealing", *Scientific Reports* **11** (2021) 3792.

### **2016**

5. Sang-Koog Kim, Myoung-Woo Yoo, **Jehyun Lee**, Jae-Hyeok Lee, and Min-Kwan Kim  
"Resonant vortex-core reversal in magnetic nano-spheres as robust mechanism of efficient energy absorption and emission", *Scientific Reports* **6** (2016) 31513.

### **2015**

6. Bosung Kim, Myoung-Woo Yoo, **Jehyun Lee**, and Sang-Koog Kim  
"Temperature effect on vortex-core reversals in magnetic nanodots", *J. Appl. Phys.* **117** (2015) 173910.
7. Sang-Koog Kim, Myoung-Woo Yoo, **Jehyun Lee**, Ha-Youn Lee, Jae-Hyeok Lee, Yuri Gaididei, Volodymyr P. Kravchuk & Denis D. Sheka  
"Resonantly excited precession motion of three-dimensional vortex core in magnetic nanospheres", *Scientific Reports* **5** (2015) 11370.

### **2014**

8. Min-Kwan Kim, Prasanta Dhak, Ha-Youn Lee, Jae-Hyeok Lee, Myoung-Woo Yoo, **Jehyun Lee**, Kyoungsuk Jin, Arim Chu, Ki Tae Nam, Hyun Soon Park, Shinji Aizawa, Toshiaki Tanigaki, Daisuke Shindo, Miyoung Kim and Sang-Koog Kim  
"Self-assembled magnetic nanospheres with three-dimensional magnetic vortex", *Appl. Phys. Lett.* **105** (2014) 232402.
9. Robert Streubel, **Jehyun Lee**, Denys Makarov, Mi-Young Im, Daniil Karnaushenko, Luyang Han, Rudolf Schafer, Peter Fischer, Sang-Koog Kim, Oliver G. Schmidt  
"Magnetic Microstructure of Rolled-Up Single-Layer Ferromagnetic Nanomembranes", *Adv. Mater.* **26** (2014) 316.
10. **Jehyun Lee**, Denys Makarov, Christoph Brombacher, Barbara Dymerska, Dieter Suess, Manfred Albrecht, Josef Fidler  
"Scaling dependence and tailoring of the pinning field in FePt-based exchange coupled composite media", *Nanotechnology* **25** (2014) 045604.

### **2013**

11. Robert Streubel, Denys Makarov, **Jehyun Lee**, Christian Müller, Michael Melzer, Rudolf Schäfer, Carlos Cesar Bof Bufon, Sang-Koog Kim, Oliver G. Schmidt  
"Rolled-up Permalloy Nanomembranes with Multiple Windings", *SPIN* **3** (2013) 1340001.
12. V Neu, C Schulze, M Faustini, **J Lee**, D Makarov, D Suess, S-K Kim, D Grosso, L Schultz and M Albrecht  
"Probing the energy barriers and magnetization reversal processes of nanoperforated membrane based percolated media", *Nanotechnology* **24** (2013) 145702.
13. Young-Sang Yu, Dong-Soo Han, Myoung-Woo Yoo, Ki-Suk Lee, Youn-Seok Choi, Hyunsung Jung,

**Jehyun Lee**, Mi-Young Im, Peter Fischer & Sang-Koog Kim

"Resonant amplification of vortex-core oscillations by coherent magnetic-field pulses", Scientific Reports 3 (2013) 1301.

14. **Jehyun Lee**, Barbara Dymerska, Josef Fidler, Vasilis Alexandrakakis, Thanassis Speliotis, Dimitris Niarchos, Peter Pongratz, Dieter Suess

"Fabrication and high-resolution electron microscopy study of FePt L10/A1 graded exchange spring media", Phys. Status Solidi (A) 210 (2013) 1305.

15. YM Kang, **J Lee**, YJ Kang, JB Park, SI Kim, SM Lee, K Ahn

"Understanding on coercivity behavior of M-type strontium hexaferrite through thin-film experiment and micromagnetic modeling", Appl. Phys. Lett. 103 (2013) 122407.

## 2012

16. G. Fiedler, J. Fidler, **J. Lee**, T. Schrefl, R. L. Stamps, H. B. Braun and D. Suess,  
"Direct calculation of the attempt frequency of magnetic structures using the finite element method", J. Appl. Phys. 111 (2012) 093917.

17. Myoung-Woo Yoo, **Jehyun Lee** and Sang-Koog Kim,

"Radial-spin-wave-mode-assisted vortex-core magnetization", Appl. Phys. Lett. 100 (2012) 172413.

18. B Dymerska, **J Lee**, J Fidler, D Suess,

"Micromagnetic study of exchange spring media with a rough interface on an example of FePt films", J. Phys D: Appl. Phys. 45 (2012) 495001.

## 2011

19. C. Brombacher, M. Grobis, **J. Lee**, J. Fidler, T. Eriksson, T. Werner, O. Hellwig, and M. Albrecht,  
"L1<sub>0</sub> FePtCu bit patterned media", Nanotechnology 23 (2011) 025301.

20. D. Suess, L. Breth, **J. Lee**, M. Fuger, C. Vogler, F. Bruckner, B. Bergmair, T. Huber and J. Fidler,  
"Calculation of coercivity of magnetic nanostructures at finite temperatures", Appl. Phys. Lett. 99 (2011) 062505.

21. **Jehyun Lee**, Christoph Brombacher, Josef Fidler, Barbara Dymerska, Dieter Suess, and Manfred Albrecht,  
"Contribution of the easy axis orientation, anisotropy distribution and dot size on the switching field distribution of bit patterned media", Appl. Phys. Lett. 99 (2011) 062505.

22. **Jehyun Lee**, Vasilis Alexandrakakis, Markus Fuger, Barbara Dymerska, Dieter Suess, Dimitris Niarchos and Josef Fidler,  
"FePt L1<sub>0</sub>/A1 graded media with a rough interphase boundary", Appl. Phys. Lett. 98 (2011) 222501.

23. V. Alexandrakakis, Th. Speliotis, E. Manios, D. Niarchos, J. Fidler, and **Jehyun Lee**, G. Varvaro  
"Hard/graded exchange spring composite media based on FePt", J. Appl. Phys. 109 (2011) 07B729.

## 2010

24. C. Schulze, M. Faustini, **J. Lee**, H. Schletter, P. Krone, M. Gass, K. Sader, A. L. Bleloch, M. Fuger, D. Suess, J. Fidler, M. U. Lutz, U. Wolff, V. Neu, M. Hietschold, D. Makarov and M. Albrecht  
"Magnetic Films On Nanoperforated Templates: A Route Towards Percolated Perpendicular Media", Nanotechnology 21 (2010) 495701.

25. J. Schratzberger, **J. Lee**, M. Fuger, J. Fidler, G. Fiedler, T. Schrefl, and D. Suess  
"Validation of the transition state theory with Langevin-dynamics simulations", J. Appl. Phys. 108 (2010) 033915.

26. **Jehyun Lee**, Markus Fuger, Josef Fidler, Dieter Suess, Thomas Schrefl and Osamu Shimizu,  
"Modeling of the write and read back performances of hexagonal Ba-ferrite particulate media for high density tape recording", J. Magn. Magn. Mater. 322 (2010) 3869.

27. D. Suess, D. Punz, **J. Lee**, M. Fuger, J. Fidler and T. Schrefl,  
" Theory and Micromagnetics of Pinning Mechanism at Cylindrical Defects in Perpendicular Magnetic Films", J. Appl. Phys. 107 (2010) 113926.

28. **Jehyun Lee**, Thomas Uhrmann, Theodoros Dimopoulos, Hubert Brückl, and Josef Fidler,  
"TEM Study on Diffusion Process of NiFe Schottky and MgO/NiFe Tunneling Diodes for Spin Injection in Silicon", IEEE Trans. Magn. 46 (2010) 2067.

29. Denys Makarov, **Jehyun Lee**, (*D. Makarov and J. Lee are equally contributed*) Christoph Brombacher, Christian Schbert, Markus Fuger, Josef Fidler and Manfred Albrecht, "Perpendicular FePt-based exchange-coupled composite media", Appl. Phys. Lett., 96 (2010) 062501
30. V. Alexandrakakis, D. Niarchos, K. Mergia, **Jehyun Lee**, J. Fidler, I. Panagiotopoulos, "Magnetic Properties of Graded Al/L10 films obtained by heat-treatment of FePt/CoPt multilayers", J. Appl. Phys., 107 (2010) 013903.

## 2009

31. **Jehyun Lee**, Dieter Suess, Thomas Schrefl, Julian Dean, Josef Fidler, "Increases in effective head field gradients in exchange spring media", Appl. Phys. Lett., 95 (2009) 172509.
32. G. Winkler, D. Suess, **J. Lee**, J. Fidler, M. A. Bashir, J. Dean, A. Goncharov, G. Hrkac, S. Bance, and T. Schrefl, "Microwave-assisted three-dimensional multilayer magnetic recording", Appl. Phys. Lett., 94 (2009) 232501.
33. D. Suess, **J. Lee**, J. Fidler, H. S. Jung, E. M. T. Velu, W. Jiang, S. S. Malhotra, G. Bertero, and T. Schrefl, "Effect of Intergranular Exchange on Thermal Stability and Coercive Field of Perpendicular, Single Phase, Exchange Spring, and Coupled Granular Continuous", IEEE Trans. Magn., 45 (2009) 88.
34. Ji Woo Kim, Oliver Friedrichs, Jae-Pyoung Ahn, Do-Hyun Kim, Seul-Cham Kim, Arndt Remhof, Hee-Suk Chung, **Jehyun Lee**, Jae-Hyeok Shim, Young Whan, "Transmission electron microscopy study on the microstructural change of 2LiBH<sub>4</sub>/Al with hydrogen sorption cycling", Scripta Materialia, 60 (2009) 1089.
35. **Jehyun Lee**, Dieter Suess, Thomas Schrefl, Eu Sun Yu, You Sub Lee, Kyu Hwan Oh and Josef Fidler, "Contribution of Convex Surfaces to Magnetostatic Interaction in Granular Medium", IEEE Trans. Magn., 45 (2009) 2655.
36. **Jehyun Lee**, Dieter Suess, Thomas Schrefl, Kyu Hwan Oh and Josef Fidler, "Grain geometry induced reversal behavior alteration", J. Phys. D: Appl. Phys., 42 (2009) 045005.
37. D. Suess, **J. Lee**, J. Fidler, T. Schrefl, "Exchange-coupled perpendicular media", J. Magn. Magn. Mater., 321 (2009) 545.

## 2008

38. **Jehyun Lee**, Dieter Suess, Thomas Schrefl, Kyu Hwan Oh and Josef Fidler, "Contribution of the shrunk interface and the convex surface of grains on magnetic behavior in granular film", J. Appl. Phys., (2007).

## 2007

39. **J. Lee**, D. Suess, T. Schrefl, K. Oh, J. Fidler, "Magnetic Characteristics of Ferromagnetic Nanotube", J. Magn. Magn. Mater., 310 (2007) 2445.
40. **J. Lee**, D. Suess, T. Schrefl, K. Oh, J. Fidler, "Micromagnetic study of recording on ion-irradiated granular-patterned media", J. Magn. Magn. Mater., 319 (2007) 5.
41. D. Suess, S. Eder, **J. Lee**, R. Dittrich, J. Fidler, J. W. Harrell, T. Schrefl, G. Hrkac, M. Schabes, N. Supper, A. Berger, "Reliability of Sharrocks equation for exchange spring bilayers", Phys. Rev. B., 75 (2007) 174430.

## 2006

42. **J. Lee**, D. Suess, T. Schrefl, K. Oh, J. Fidler, "Contribution of Local Incoherency on Gilbert-Damping", IEEE Trans. Magn., 42 (2006) 3210.

## 2005

43. Jang, S.H., Kim, Y.W., **Lee, J.H.**, Kim, K.Y., "Si -based magnetic tunnel transistor with single CoFe base layer ", J. Appl. Phys., 98 (2005) 094502.

## 2004

44. **J. Lee**, K. Oh, H. Kim, K. Kim, "Magnetization reversal process of the nanosized elliptical permalloy magnetic dots with various aspect ratios", J. Magn. Magn. Mater., 272-276 (2004) 736.
45. S. Jang, T. Kang, **J. Lee**, K. Kim, "Si-based magnetic tunnel transistor with high transfer ratio", J. Magn. Magn. Mater., 272-276 (2004) 1930.
46. D. Kim, J. Kim, B. Park, J. Lee, J. Kim, **J. Lee**, J. Chang, H. Kim, I. Kim, Y. Park, "SrFeO<sub>3</sub> nanoparticles-dispersed SrMoO<sub>4</sub> insulating thin films deposited from Sr<sub>2</sub>FeMoO<sub>6</sub> target in oxygen atmosphere", Appl. Phys. Lett., 84 (2004) 5037.

## INVITED TALKS (12)

---

### 2023

1. **Jehyun Lee**,  
"Evolution of ChatGPT and Applications in KIER", November 3 – 4. 2023, The 62<sup>nd</sup> Annual Meeting of the Korean Society of Nuclear Medicine & the 22<sup>nd</sup> Annual Meeting of Asian Regional Cooperation Council of Nuclear Medicine (2023 Annual Meeting of KSNM & ARCCNM), Sejong University, Seoul.
2. **Jehyun Lee**,  
"Best Practices of Streamlining Research using AI and Data (AI 와 데이터를 활용한 연구 업무 효율화 사례)", October 25 – 27. 2023, Conference of the Korean Institute of Metals and Materials, Daegu Convention Center, Daegu, Korea.
3. **Jehyun Lee**,  
"How ChatGPT has changed your work", September 20. 2023, The 32<sup>nd</sup> Workshop on Information Security and Cryptography (WISC2023), Seoul, Korea.
4. **Jehyun Lee**, Seunghee Lee,  
"Photovoltaic Module Research Trends", September 6 – 8. 2023, GPVC 2023, Kimdaejung Convention Center, Gwangju, Korea.

### 2013

5. **Jehyun Lee**, "Rolled-up Permalloy Nanomembranes with Multiple Windings," 13. March, Institute for Integrative Nanosciences, **IFW Dresden**, Dresden, Germany.

### 2012

6. **Jehyun Lee**, "Micromagnetic simulations based on directly observed microstructures," 14. August, **Samsung Advanced Institute of Technology**, Yongin-si, Gyeonggi-do, Korea.
7. **Jehyun Lee**, Youn-Seok Choi, Myoung-Woo and Sang-Koog Kim, "(tutorial) Micromagnetic Simulations of Collective Spin Excitations in Geometrically Confined Nanomagnets: Fundamentals of Micromagnetics," 24. May, **Korean Magnetism Society Summer Conference**, Hotel Intercity, Daejeon, Korea.

### 2011

8. **Jehyun Lee** and Sang-Koog Kim, "Micromagnetic simulations based on directly observed microstructures," 5. December, **Korean Magnetism Society Winter Conference**, Hotel Ramada, Jeju, Korea.
9. **Jehyun Lee**, "Introduction of the FEMME: Finite Element MicroMagnEtics," 31. August, Department of Materials Science and Engineering, **Seoul National University**, Seoul, Korea.
10. **Jehyun Lee**, "Introduction of finite element micromagnetics on 3-dimensional arbitrary geometries," 10. June, Institute for Integrative Nanosciences, **IFW Dresden**, Dresden, Germany.
11. **Jehyun Lee**, "Microstructure and the micromagnetism of advanced magnetic recording media," 3. May, Department of Materials Science and Engineering, **Seoul National University**, Seoul, Korea.

### 2008

12. **Jehyun Lee**, "Image Analysis," 20. February, **Austria Institute of Technology**, Vienna, Austria.

## PRESENTATIONS IN INTERNATIONAL CONFERENCES (45)

---

### 2023

1. **Jehyun Lee**, Jun Muk Cho, Minhee Park  
"Industrial trend analysis by large language" CA & Hybrid, August 13 – 17. 2023, ACS Nano 2023, San Francisco, California, United States.

## 2022

2. Jihoo Jung, **Jehyun Lee**, Sangjin Choi, Woonho Baek  
"Analysis on Advanced Foreign Institution for R&D Planning of International Cooperation using Open API", 27 Sep.-3 Oct. 2022, The 11<sup>th</sup> Asia-Pacific Forum on Renewable Energy (AFORE 2022), Ramada Plaza Jeju, Jeju, Korea.
3. Byung-Hyun Kim, **Jehyun Lee**, Kwangsoo Kim, Myeongjin Kim,  
"Design of Metal-Doped 2D Transition Metal Dichalcogenides for a Superior Oxygen Reduction Reaction Electrocatalyst: From Density Functional Theory and Data Analysis to Experiment", 9-13 Oct. 2022, The 242<sup>nd</sup> ECS Meeting, Atlanta Hilton, Atlanta, Georgia, United States.

## 2020

4. **Jehyun Lee**, Chang Ki Kim, Chang-Yeol Yun, Dae Hyun Song, Yong-Heack Kang, Hyun-Goo Kim,  
"Machine-Learning Model for Urban Rooftop Irradiation Loss by Building Shadow", 8-13 Nov. 2020, The 30<sup>th</sup> International Photovoltaic Science and Engineering Conference (PVSEC-30) & Global Photovoltaic Conference 2020 (GPVC2020), ICC JEJU, Jeju, Korea.
5. Hyun-Goo Kim, **Jehyun Lee**, Chang Ki Kim, Chang-Yeol Yun, and Bo-Young Kim,  
"BIPV Potential Estimation for Urban City Based on the Solar Energy Map of Daejeon", 8-13 Nov. 2020, The 30<sup>th</sup> International Photovoltaic Science and Engineering Conference (PVSEC-30) & Global Photovoltaic Conference 2020 (GPVC2020), ICC JEJU, Jeju, Korea.

## 2019

6. **Jehyun Lee**, Junho Won, Chang Ki Kim, Chang-Yeol Yun, Dae Hyun Song, Yong-Heack Kang, Hyun-Goo Kim,  
"Machine-Learning Model for Building-Integrated Photovoltaic(BIPV) System in Urban Area", 13-19 Nov. 2019, 9<sup>th</sup> Asia-Pacific Forum on Renewable Energy (AFORE), Maison Glad Hotel, Jeju, Korea.

## 2018

7. Kanghoon Yim, Chan-Woo Lee, **Jehyun Lee**, Incheol Jeong, Yong Youn, Seungwu Han,  
"Development of First-principles Platform Technology for Energy Research", Oct. 28–Nov. 2, 2018, The 9<sup>th</sup> International Conference on Multiscale Materials Modeling (MMM 2018), Osaka International Convention Center, Osaka, Japan.

## 2012

8. **Jehyun Lee**, Denys Makarov, Robert Streubel, Carlos Cesar Bof Bufon, Celine Vervacke, Dieter Suess, Josef Fidler, Oliver G Schmidt and Sang-koog Kim,  
"Vortex and antivortex formation in magnetic rolled-up nanotubes", Jul. 8–13, 2012, International Conference on Magnetism 2012, BEXCO, Busan, Korea.
9. Myoung-woo Yoo, **Jehyun Lee** and Sang-koog Kim,  
"Switching dynamics of vortex cores in nanodots by azimuthal-spinwave-mode excitation", Jul. 8–13, 2012, International Conference on Magnetism 2012, BEXCO, Busan, Korea.

## 2011

10. D. Suess, T. Schrefl, F. Bruckner, C. Vogler, B. Bergmair, T. Huber, **J. Lee** and J. Fidler, "Principle calculation of coercivity of magnetic nanostructures at finite temperatures", Oct. 30–Nov.3, 2011, MMM Conference 2011, JW Marriott Desert Ridge Resort & Spa, Phoenix, USA.
11. B. Dymerska, **J. Lee**, V. Alexandrakis, D. Niarchos, D. Suess and J. Fidler,  
"TEM studies and micromagnetic simulations of the FePt L10/A1 phase graded media", Oct. 30–Nov.3, 2011, MMM Conference 2011, JW Marriott Desert Ridge Resort & Spa, Phoenix, USA.
12. **J. Lee**, D. Makarov, D. Suess, J. Fidler, O. G. Schmidt and S. Kim,  
"Magnetic Switching Behaviors of Ferromagnetic Rolled-up Nanotubes", Oct. 30–Nov.3, 2011, MMM Conference 2011, JW Marriott Desert Ridge Resort & Spa, Phoenix, USA.
13. M. Yoo, **J. Lee** and S. Kim, "Radial-spin-wave-mode-assisted vortex-core magnetization reversals", Apr. Oct. 30–Nov.3, 2011, MMM Conference 2011, JW Marriott Desert Ridge Resort & Spa, Phoenix, USA.
14. **J. Lee**, M. Fuger, D. Suess and J. Fidler, "Performance of Single Pole Tip head on h-BaFe particulate tape recording media", Apr. 25–29, 2011, Intermag Conference 2011, Taipei International

Convention Center, Taipei, Taiwan.

15. **J. Lee**, V. Alexandrakis, M. Fuger, D. Suess, D. Niarchos and J. Fidler, "Micromagnetic simulations on FePt L1<sub>0</sub>/A1 phase graded media", Apr. 25–29, 2011, Intermag Conference 2011, Taipei International Convention Center, Taipei, Taiwan.
16. M. Albrecht, C. Schulze, C. Brombacher, **J. Lee**, J. Fidler, M. Faustini, D. Grosso, D. Makarov and M. Grobis, "Magnetic films on templates: A route towards percolated media", Apr. 25–29, 2011, Intermag Conference 2011, Taipei International Convention Center, Taipei, Taiwan.

## 2010

17. **J. Lee**, D. Makarov, C. Brombacher, B. Dymerska, M. Fuger, D. Suess, M. Albrecht and J. Fidler, "TEM Studies on RTA treated FePt-based Exchange Coupled Composite Media", Nov. 14–18, 2010, MMM Conference 2010, Hyatt Regency Atlanta, Atlanta, USA.
18. C. Vogler, F. Bruckner, M. Fuger, **J. Lee**, J. Fidler and D. Suess, "3D-MRAM Device based on Resonant AC-Spin Polarized Currents", Nov. 14–18, 2010, MMM Conference 2010, Hyatt Regency Atlanta, Atlanta, USA.
19. M. Fuger, **J. Lee**, J. Fidler, D. Suess and T. Schrefl, "Modeling of the influence of the passivation shell on the magnetization process of advanced MP tape recording films", Nov. 14–18, 2010, MMM Conference 2010, Hyatt Regency Atlanta, Atlanta, USA.
20. F. Bruckner, C. Vogler, M. Fuger, **J. Lee**, J. Fidler and D. Suess, "Simultaneously solving magnetostatic Maxwell equations and LLG for extended micromagnetic simulations", Nov. 14–18, 2010, MMM Conference 2010, Hyatt Regency Atlanta, Atlanta, USA.
21. M. Fuger, **J. Lee**, J. Fidler, D. Suess, "Micromagnetic study of the recording performance of advanced h-BaFe based tape recording materials", Aug. 23–28, 2010, Joint European Magnetic Symposia (JEMS) 2010, Jagiellonian University, Krakaw, Poland.
22. **J. Lee**, D. Makarov, B. Dymerska, C. Brombacher, J. Fidler, M. Fuger, D. Suess and M. Albrecht, "TEM study of interface properties of FePtCu-based exchange coupled composite media", Aug. 23–28, 2010, Joint European Magnetic Symposia (JEMS) 2010, Jagiellonian University, Krakaw, Poland.
23. Josef Fidler, **Jehyun Lee**, Markus Fuger, Dieter Suess, and Thomas Schrefl, "Material and Nanosensor design by finite element Micromagnetic Modeling", Jun. 7–8, 2010, ROMSC 2010, "Alexandru Ioan Cuza", University of Iasi, Iasi, Romania.
24. D. Makarov, C. Brombacher, **J. Lee**, J. Fidler and M. Albrecht, "Scaling dependence of the switching field of the hard layer in perpendicular FePt-based exchange coupled composite media", Sep. 13–17, 2010, Nano 2010, University La Sapienza, Rome, Italy.
25. Josef Fidler, **Jehyun Lee**, Markus Fuger, Dieter Suess, and Thomas Schrefl, "Particular and granular magnetic nanostructures for advanced magnetic recording schemes", Sep. 13–17, 2010, Nano 2010, University La Sapienza, Rome, Italy.
26. **Jehyun Lee**, Josef Fidler, Thomas Uhrmann, Theodore Dimopoulos, and Hubert Brückl, "TEM study on the diffusion process of Si/NiFe Schottky barrier and Si/MgO/NiFe tunneling diode", Jan. 18–22, 2010, Joint MMM/Intermag Conference 2010, Marriott Wardman Park, Washington D.C., USA.
27. M. Fuger, **J. Lee**, J. Fidler, D. Suess and T. Schrefl, "Micromagnetic study of particulate media reversal for tape recording", Jan. 18–22, 2010, Joint MMM/Intermag Conference 2010, Marriott Wardman Park, Washington D.C., USA.
28. G. Fiedler, M. Janisch, **J. Lee**, M. Fuger, J. Fidler and T. Schrefl, "Direct calculation of the attempt frequency of magnetic nanostructures using FEM", Jan. 18–22, 2010, Joint MMM/Intermag Conference 2010, Marriott Wardman Park, Washington D.C., USA.

## 2009

29. Thomas Schrefl, David Hahn, M.A. Bashir, Alexander Goncharov, Gino Hrkac, Julian Dean, **Jehyun Lee**, and Dieter Suess, "Numerical methods help to optimize hard disks", The 20<sup>th</sup> Magnetic Recording Conference (TMRC), Oct. 5–7, 2009, University of Alabama, Tuscaloosa, AL, USA.
30. **J. Lee**, J. Fidler, V. Alexandrakis, and D. Niarchos, "High Resolution TEM study of exchnage coupled FePt/CoPt thin films", Microscopy Conference 2009, Aug. 30 – Sep. 4, 2009, Congress Graz, Graz, Austria.



31. **Jehyun Lee**, Dieter Suess, Thomas Schrefl, Josef Fidler, "Head Field Gradient Effect on Magnetic Recording", Intermag Conference 2009, May 4-8, 2009, Convention Center, Sacramento, USA.

## 2008

32. **Jehyun Lee**, Dieter Suess, Josef Fidler, Thomas Schrefl, Eu Sun Yu, You Sub Lee, Kyu Hwan Oh, "Contribution of the Convex Surfaces on Magnetostatic Interaction in Granular Medium", Asian Magnetism Conference 2008, December 9-13, 2008, Paradise Hotel, Busan, Korea.
33. **Jehyun Lee**, Josef Fidler, Dieter Suess, Thomas Schrefl, Sanghwan Park, Kyu Hwan Oh, "Micromagnetic analysis of the switching field of CoCrPt-SiO<sub>2</sub> and CoPt-TiO<sub>2</sub> bilayers", 53<sup>rd</sup> MMM Conference 2008, November 10-14, 2008, Hilton Austin Convention Center, Austin, Texas, USA.
34. **Jehyun Lee**, Dieter Suess, Thomas Schrefl, Kyu Hwan Oh, Josef Fidler, "Nucleation field reduction due to convex surface in magnetic recording media", Joint European Magnetic Symposia 2008, September 14-19, 2008, Trinity College, Dublin, Ireland.
35. Josef Fidler, **Jehyun Lee**, Dieter Suess and Thomas Schrefl, "Tuning of coercive field of nanostructured hard magnetic films", Workshop on Rare Earth Permanent Magnets, September 8-10, 2008, Movenpick Hotel, Kronoss, Greece.
36. Josef Fidler, Dieter Suess, **Jehyun Lee** and Thomas Schrefl, "Exchange-coupled magnets: Challenges", Workshop on Research Trends in Novel Magnets for Electromagnetic Applications, September 3-5, Hotel Santorini Palace, Santorini, Greece.

## 2007

37. **Jehyun Lee**, Dieter Suess, Rok Dittrich, Thomas Schrefl, Kyu Hwan Oh and Josef Fidler, "Contribution of the convex grain surface on magnetic behavior", 52<sup>nd</sup> MMM Conference 2007, November 5-9, 2007, Marriott Waterside Hotel, Tampa, USA
38. **Jehyun Lee**, M. Kim, D. Suess, T. Schrefl, K. Oh, J. Fidler, "Magnetic Characteristics of Co nano particle", Joint MMM/Intermag Conference 2007, January 7-11, 2007, Marriott Waterside Hotel & Marina, Baltimore, USA.

## 2006

39. Thomas Schrefl, Dieter Suess, **Jehyun Lee**, Rok Dittrich, Florian Dorfbauer, Josef Fidler, Manfred Schabes, "Nanomagnetic simulations of recording media", APS March meeting, March 13-17, 2006, The Baltimore Convention Center, Baltimore, USA.
40. **J. Lee**, D. Suess, T. Schrefl, K. Oh and J. Fidler, "Contribution of non-uniform magnetic states on Gilbert-damping in perpendicular media", Joint MMM/Intermag Conference, May 8-12, 2006, Town & Country Hotel, San Diego, USA.
41. **J. Lee**, D. Suess, T. Schrefl, K. Oh and J. Fidler, "Magnetic recording on patterned media prepared by ion beam irradiations", Joint MMM/Intermag Conference, May 8-12, 2006, Town & Country Hotel, San Diego, USA.
42. **Jehyun Lee**, Dieter Suess, Thomas Schrefl, Kyu Hwan Oh, Josef Fidler, "Magnetic Characteristics of Ferromagnetic Nanotube", ICM2006, August 20-25, 2006, Kokusaikaikan, Kyoto, Japan.

## 2005

43. Josef Fidler, Dieter Suess, Karina Porath, **Jehyun Lee**, Thomas Schrefl, "Optimization of advanced perpendicular media by micromagnetic modeling", The 16th Annual Magnetic Recording Conference, August 15-17, 2005, Stanford University, CA, USA.

## 2004

44. **J. Lee**, S. Jang, Y. Kim, K. Oh, D. Kim and K. Kim, "Effect of the thickness of base layer on properties of Si-based magnetic tunnel transistor", 9th Joint MMM-Intermag Conference, January 5-9, 2004, Anaheim, CA, USA.

## 2003

45. 이재현, K. Oh, H. Kim and K. Kim, "Magnetization reversal process of the nanosized elliptical permalloy magnetic dots with various aspect ratios". International Conference on Magnetism 2003, July 27-August 1, 2003, Roma, Italy.

## PATENTS (13)

---

### 2022

1. 박민철, 고정훈, 박지용, **이제현**, 김대신, "웨이퍼 맵 분석 장치, 이를 이용한 웨이퍼 맵 분석 방법 및 반도체 제조 방법" 등록번호 102440695, 공개번호 1020190017344
2. **이제현**, 유시현, 김창기, 김현구, "문헌 정보를 분석하기 위한 장치 및 그 방법". 출원번호 10-2022-0080454

### 2021

3. **이제현**, 오명찬, 김창기, 김현구, "머신 러닝 모델을 이용하여 일사 손실률을 예측하기 위한 장치 및 그 방법". 등록번호 102491297, 공개번호 1020220132844

### 2018

4. **이제현**, 장성환, 정성윤, 정재훈, "셀프 구조 분석을 이용한 구조 잡음 감소 방법 및 장치". 출원번호 1020160165559, 공개번호 1020180065135
5. 심성보, 고정훈, **이제현**, 정재훈, "패턴 측정 방법 및 그를 포함하는 반도체 소자의 제조 방법". 출원번호 1020160122397, 공개번호 1020180033367
6. 심성보, **이제현**, "웨이퍼 측정 설비, 웨이퍼 측정 시스템 및 이를 이용한 반도체 장치의 제조 방법". 출원번호 1020180007239

### 2017

7. 김성렬, 고정훈, 김성제, **이제현**, 전종욱, "반도체 집적회로의 수율 예측 장치, 및 이를 이용한 반도체 장치 제조 방법". 출원번호 10-2017-0109787, 공개번호 10-2019-0023670
8. 박민철, **이제현**, 고정훈, 김영구, 이근호, "두께 측정 방법, 영상 처리 방법 및 이를 수행하는 전자 시스템". 등록번호 1023925970000, 공개번호 102017044424 (중국특허 등록번호 CN106601642, 미국특허 등록번호 US10055829, 대만특허 등록번호 TWI689703)

### 2016

9. 박민철, 김대신, 김삿별, 김세진, 샤즈리양, **이제현**, "고해상도 전자 현미경 이미지로부터 결정을 분석하는 방법 및 그 시스템". 등록번호 102301536, 공개번호 1020160109303 (중국특허 등록번호 CN105976349, 미국특허 등록번호 US10217205, 대만특허 출원번호 TW201702991)

### 2015

10. 조근우, **이제현**, 문경석, 강영재, 강영민, 안경한, 이상목, "자성 분말, 그 제조 방법, 및 이를 포함하는 자석". 출원번호 1020130126509, 공개번호 1020150126509
11. 강영민, 안경한, 나나 사폴레토바, 이상목, 강영재, 문경석, **이제현**, 조근우, "자성 분말, 그 제조 방법, 및 이를 포함하는 자석". 출원번호 1020130126510, 공개번호 1020150048256

### 2013

12. 김상국, **이제현**, 이하연, "자성 나노 입자의 선택적 활성화 방법 및 선택적 활성화되는 자성 나노 입자". 등록번호 10149296, 공개번호 1020140032756 (유럽특허 등록번호 02893920, 미국특허 등록번호 09336934, 세계지적재산권기구 출원번호 PCT/KR2013/007923)
13. 문경석, 강영민, 강영재, 안경한, 이상목, **이제현**, 조근우, "소결자석 제조 방법". 출원번호 1020130161813, 공개번호 1020150073759

## SOFTWARE COPYRIGHT (2)

---

### 2022

1. 한국에너지기술연구원, "임의의 연구 주제에 대한 동향 분석 프로그램". 제 C-2022-014624 호

### 2018

2. 한국에너지기술연구원, "원자구조의 분자흡착구조 선별 모델링 자동화 프로그램". 제 C-2018-039985 호

## LECTURES (4)

---

### 2023

1. **Lecturer**  
Solar-Geothermal Fusion System Engineering (Dr. Sung Eun Park), University of Science & Technology.  
Spring Semester
2. **Lecturer**  
AI and Green Energy (Dr. Chi-Hwan Han), University of Science & Technology.  
Spring Semester

### 2007

3. **Teaching Assistant**  
Numerical Image Analysis (Prof. Kyu Hwan Oh), Seoul National University.  
Fall Semester

### 2004

4. **Teaching Assistant**  
Electric Circuits (Prof. Kyu Hwan Oh), Seoul National University.  
Fall Semester

## RESEARCH VISITS

---

**Korea Institute of Science and Technology**, Seoul, Republic of Korea **7/1999 – 8/1999**  
[Research Assistant as a Bachelor candidate](#)  
Under supervision of Dr. **Kwang Ryeol Lee**, Thin Film Research Center

**Korea Institute of Science and Technology**, Seoul, Republic of Korea **8/2001 – 8/2004**  
[Research Assistant as a Graduate school student](#)  
Under supervision of Dr. **Kwang Youn Kim**, Nano Device Research Center

**Vienna University of Technology**, Vienna, Austria **2/2005 – 2/2006, 2/2007**  
[Guest Researcher](#)  
Under supervision of Prof. **Josef Fidler**, Prof. **Thomas Schrefl** and Dr. **Dieter Suess**  
Financially supported by the BK21 project of the Ministry of Education and Human Resource Foundation, Republic of Korea.

**Vienna University of Technology**, Vienna, Austria **12/2007 – 8/2008**  
[Guest Researcher](#)  
Under supervision of Prof. **Josef Fidler**, Prof. **Thomas Schrefl** and Dr. **Dieter Suess**  
Financially supported by the project of the FWF (Austrian Science Fund), Austria and the KOSEF (Korean Science Foundation), Republic of Korea.

## TASK FORCE TEAM ACTIVITIES

---

**AI Community** **1/2017 – 12/2017**  
Supervisor: **Seok-Woo Nam** (Executive Vice President)  
Facilitator: Wonseok Yang, Principle Engineer  
Semiconductor R&D Center, Samsung Electronics

**Big Data TF** **3/2015 – 12/2016**  
Supervisor: **Seok-Woo Nam** (Executive Vice President)  
Facilitator: Wonseok Yang, Principle Engineer  
Semiconductor R&D Center, Samsung Electronics

**Innovation (Solgae) TF** **3/2015 – 9/2015**  
CAE Team (Team Leader: **Young-Gwan Park**, Vice President)  
Semiconductor R&D Center, Samsung Electronics

## AWARDS AND REMARKS (36)

---

1. **KIER Conference Work Innovation 1<sup>st</sup> Prize (2023):**  
대상 (한국에너지기술원장 훈격)  
이재현, 박민희, 조준목, 최상진, 정지후, “에너지 R&D 혁신을 위한 계산과학 기반 연구 및 기후변화 대응 정책지원 기반구축”  
Awarded by **President of Korea Institute of Energy Research (Dr. Chang-Keun Yi)**
2. **Collaboration Team Award (2023):**  
우수 협업부서상 (한국에너지기술연구원장 훈격)  
이재현, 이찬우, 주영환, 박정호, 박상신, 임강훈, 윤용, 정우석, 이승희, 김상우  
Awarded by **President of Korea Institute of Energy Research (Dr. Chang-Keun Yi)**
3. **Collaboration Award (2023):**  
협업상 (한국에너지기술연구원장 훈격)  
이재현 (에너지+AI 학습조직)  
Awarded by **President of Korea Institute of Energy Research (Dr. Chang-Keun Yi)**
4. **Safety · Health Activity Team Award (2023):**  
안전·보건활동 종합평가 우수부서상 (한국에너지기술연구원장 훈격)  
에너지 AI · 계산과학실  
Awarded by **President of Korea Institute of Energy Research (Dr. Chang-Keun Yi)**
5. **NST Digital Transformation Idea Competition 1<sup>st</sup> Prize (2023):**  
국가과학기술연구회 디지털 전환 아이디어 공모전 대상 (국가과학기술연구회장 훈격)  
이재현, 김희웅, 고은정, “연구 책임자 연구 역량 증빙 자동화”  
Awarded by **Chairperson of National Research Council of Science & Technology (Dr. Bok Chul Kim)**
6. **Collaboration Award (2022):**  
협업상 (한국에너지기술연구원장 훈격)  
이재현 (KIER Tube 활성화)  
Awarded by **President of Korea Institute of Energy Research (Dr. Jong-nam Kim)**
7. **NST RPA Task Idea Competition 1<sup>st</sup> Prize (2022):**  
국가과학기술연구회 RPA 업무 아이디어 공모전 대상 (국가과학기술연구회장 훈격)  
이재현, 송영호, 김순환, 김태호, 정경훈, 고은정, “채용 검증 자동화”  
Awarded by **Chairperson of National Research Council of Science & Technology (Dr. Bok Chul Kim)**
8. **KIER Conference Work Innovation 3<sup>rd</sup> Prize (2022):**  
우수상 (한국에너지기술원장 훈격)  
이재현, 이고운, 권지희, 김예진, 유정준, 박지찬, “연구 데이터 시스템 구축”  
Awarded by **President of Korea Institute of Energy Research (Dr. Jong-nam Kim)**
9. **KIER Conference Work Innovation 3<sup>rd</sup> Prize (2022):**  
우수상 (한국에너지기술원장 훈격)  
이재현, 송영호, 최인용, 이민규, 구기관, 유재경, 송영배, 정지후, 박민희,  
“문헌 정보 분석 기술 기반 업무 자동화 및 심층 분석”  
Awarded by **President of Korea Institute of Energy Research (Dr. Jong-nam Kim)**
10. **KIER Conference Poster 3<sup>rd</sup> Prize (2022):**  
우수상 (한국에너지기술원장 훈격)  
윤창열, 오명찬, 김보영, 김현구,  
“100m x 100m 격자형 국내 태양광 시장잠재량 분석모델 및 데이터 플랫폼 개발”  
Awarded by **President of Korea Institute of Energy Research (Dr. Jong-nam Kim)**
11. **KIER Conference Oral 3<sup>rd</sup> Prize (2022):**  
우수상 (한국에너지기술원장 훈격)  
김현구, 김창기, 오명찬, 김보영, 김진영, 윤창열, 이재현, 강용혁, 김건훈, 래티샤, 엘비나, 이동규,  
“위성영상 기반 재생에너지 발전진단 및 변동성 예측”

Awarded by **President of Korea Institute of Energy Research (Dr. Jong-nam Kim)**

**12. Tech. Award (2022):**

기술논문상 (한국태양에너지학회장 훈격)

Awarded by **President of Korean Solar Energy Society (Dr. Hyun-Goo Kim)**

**13. Best Fusion Cluster 1<sup>st</sup> Prize (2022):**

우수 융합 클러스터 최우수상 (국가과학기술연구회장 훈격)

박지찬, 강신욱, 김병현, 양정일, 이제현, 박수정, 오경희, 이학근, 장산하,  
“미래 촉매 정보학 구축을 위한 촉매 자동화 반응 및 평가용 신규 로봇 시스템 개발”

Awarded by **Chairperson of National Research Council of Science & Technology (Dr. Bok Chul Kim)**

**14. Best Paper Award (2022):**

최우수논문상 (한국태양에너지학회장 훈격)

이제현, 유시현, 김창기, 오명찬, 김보영, 강용혁, 김현구, “SCOPUS 문헌 정보 분석을 통한 머신 러닝  
활용 BIPV 연구 동향”

Awarded by **President of Korean Solar Energy Society (Dr. Hyun-Goo Kim)**

**15. Collaboration Award (2021):**

협업상 (한국에너지기술연구원장 훈격)

이제현 (에너지+AI 학습조직)

Awarded by **President of Korea Institute of Energy Research (Dr. Jong-nam Kim)**

**16. Invention Award (2021):**

창안상 (한국에너지기술연구원장 훈격)

연구 몰입도 향상 위원회 (이대근, 안승규, 송희은, 조임현, 황성목, 조원철, 김민진, 서민호, 박석인,  
류승환, 서명원, 천동현, 윤민혜, 우중제, 이제현, 송욱진, 권상훈)

Awarded by **President of Korea Institute of Energy Research (Dr. Jong-nam Kim)**

**17. KIER-Tube Video Knowledge Contents Competition 1<sup>st</sup> Prize (2021):**

KIER-Tube 동영상 지식콘텐츠 공모전 대상 (한국에너지기술연구원장 훈격)

이제현, “논문 출판 동향 분석 feat. Python”

Awarded by **President of Korea Institute of Energy Research (Dr. Jong-nam Kim)**

**18. Best Presenter Award (2021):**

우수발표논문상 (한국태양에너지학회장 훈격)

이제현, 배수민, 오명찬, 김창기, 강용혁, 김현구, “도심태양광 발전량 평가를 위한 건축물 음영 분석”

Awarded by **President of Korean Solar Energy Society (Prof. Gi-Hwan Kang)**

**19. High Quality Reviewer Awards 1<sup>st</sup> Prize (2020):**

“나는 고퀄 리뷰어다” (한빛미디어)

이제현, “밀바닥에서 시작하는 딥러닝 3”

Awarded by **Hanbit Media (Tae-Heon Kim)**

**20. Energy Award 2<sup>nd</sup> Prize (2020):**

에너지대상 최우수상 (한국에너지기술연구원장 훈격)

김현구, 김창기, 오명찬, 김진영, 이제현, 김보영, 윤창열, 강용혁, “위성영상 기반 신재생에너지 발전 진단  
및 변동성 예측”

Awarded by **President of Korea Institute of Energy Research (Dr. Jong-nam Kim)**

**21. Collaboration Award Idea Contest (2020):**

협업상 아이디어 공모전 (한국에너지기술연구원장 훈격)

김덕환, 이제현

Awarded by **President of Korea Institute of Energy Research (Dr. Jong-nam Kim)**

**22. Best Paper Award (2019):**

최우수논문상 (국토교통부장관 훈격)

이제현, 원준호, 김창기, 윤창열, 송대현, 강용혁, 김현구, “도심지 건물일체형 태양광발전시스템을 위한  
기계학습 기반의 건축물 음영 평가 모델 개발”

Awarded by **Minister of Land, Infrastructure and Transport (Hyun-mee Kim)**

23. **Best Presenter Award (2019):**  
우수발표논문상 (한국태양에너지학회장 훈격)  
이제현, 원준호, 김창기, 윤창열, 송대현, 강용혁, 김현구, "태양광 발전을 위한 도심지 음영 평가 모델 개발"  
Awarded by **President of Korean Solar Energy Society** (Prof. Doosam Song)
24. **Probity Award (2018):**  
청렴상 (한국에너지기술연구원장 훈격)  
Awarded by **President of Korea Institute of Energy Research** (Dr. Byong-Sung Kwak)
25. **SEC Annual award (2017): *For Security, Full Title cannot be described here***  
삼성전자 연례기술상 (반도체 연구소장 훈격)  
D.-S. Kim and **Jehyun Lee** et al., achievement on Deep Learning application on semiconductor development, **3<sup>rd</sup>** Prize  
Awarded by **President of Semiconductor R&D Center** (Executive VP, **Ho Kyu Kang**),  
Semiconductor R&D Center, Samsung Electronics.
26. **Future Creator award (2017): *For Security, Full Title cannot be described here***  
미래창조상 (반도체 연구소장 훈격)  
D.-S. Kim and **Jehyun Lee** et al., achievement on Deep Learning application on semiconductor development, **3<sup>rd</sup>** Prize  
Awarded by **President of Semiconductor R&D Center** (Executive VP, **Ho Kyu Kang**),  
Semiconductor R&D Center, Samsung Electronics.
27. **Future Creator award (2016): *For Security, Full Title cannot be described here***  
미래창조상 (반도체 연구소장 훈격)  
J.-H. Jeong and **Jehyun Lee** et al., achievement on 3D Modeling & Image analysis, **1<sup>st</sup>** Prize  
Awarded by **President of Semiconductor R&D Center** (Executive VP, **Eun Seung Jung**),  
Semiconductor R&D Center, Samsung Electronics.
28. **TCADer Tech. award (2016): *For Security, Full Title cannot be described here***  
CAE 기술상 (CAE 팀장 훈격)  
Nam-Hyun Kim and **J. Lee** et al., achievements on 3D Modeling  
Awarded by **CAE Team Leader** (VP, **Keun Ho Lee**),  
Semiconductor R&D Center, Samsung Electronics.
29. **Samsung Paper Award (2015): *For Security, Full Title cannot be described here***  
삼성논문상 본선진출 (반도체 연구소장 훈격)  
K. Kim and **Jehyun Lee** et al., study on 3D NAND process, **5<sup>th</sup>** Prize  
Awarded by **President of Semiconductor R&D Center** (Executive VP, **Eun Seung Jung**),  
Semiconductor R&D Center, Samsung Electronics.
30. **Semiconductor R&D Center TRIZ competition (2015): *For Security, Full Title cannot be described here***  
반도체연구소 TRIZ 경진대회 (반도체 연구소장 훈격)  
**Jehyun Lee**, achievements on 3D visualization, **4<sup>th</sup>** Prize, **Certified as TRIZ Expert (Lv.2)**  
Awarded by **President of Semiconductor R&D Center** (Executive VP, **Eun Seung Jung**),  
Semiconductor R&D Center, Samsung Electronics.
31. **Unsung Hero in DS Division (2015): *For Security, Full Title cannot be described here***  
숨은 일꾼상 2 분기 단독 수상 (DS 부문장 권오현 부회장 훈격)  
**Jehyun Lee**, achievements on image analysis related work, **1<sup>st</sup>** Prize  
Awarded by **President of Device Solutions Division** (Vice Chairman & CEO, **Oh Hyun Kwon**),  
Samsung Electronics.
32. **Specialist in Creation (2015): *For Security, Full Title cannot be described here***  
창조전문가 상반기 최우수상 (메모리 사업부장 훈격)  
Sejun Park and **Jehyun Lee** et al., achievements on 3D NAND, **1<sup>st</sup>** Prize  
Awarded by **President of Memory Business** (President, **Young-Hyun Jun**),  
DS Division, Samsung Electronics.
33. **TCADer Tech. award (2015): *For Security, Full Title cannot be described here***

CAE 기술상 (CAE 팀장 훈격)

**J. Lee** et al., achievements on 3D NAND image analysis  
Awarded by **CAE Team Leader** (VP, **Young Kwan Park**),

34. **BRAVO Paper award (2014):** *For Security, Full Title cannot be described here*

BRAVO 논문상 (CAE 팀장 훈격)

**J. Lee** et al., study on 3D NAND process, **3<sup>rd</sup>** Prize  
Awarded by **CAE Team Leader** (VP, **Young Kwan Park**),  
Semiconductor R&D Center, Samsung Electronics.

35. **Best poster award (2011)**

**J. Lee**, V. Alexandrakis, M. Fuger, D. Suess, D. Niarchos and J. Fidler, "Micromagnetic simulations on FePt L1<sub>0</sub>/Al phase graded media", Apr. 25–29, 2011, Intermag Conference 2011, Taipei International Convention Center, Taipei, Taiwan.

36. **Chosen as a "Research Highlights" in Journal of Applied Physics (2010)**

V. Alexandrakis, D. Niarchos, K. Mergia, **Jehyun Lee**, J. Fidler, I. Panagiotopoulos, "Magnetic Properties of Graded Al/L10 films obtained by heat-treatment of FePt/CoPt multilayers", J. Appl. Phys., 107 (2010) 013903.

### 2024

1. **MK Speaker**  
MK Speaker, 매일경제  
URL: [http://www.mkspeaker.co.kr/speaker\\_view.php?no=345](http://www.mkspeaker.co.kr/speaker_view.php?no=345)
2. **Regular Reviewer, of IT books of Hanbit Media**  
나는 리뷰어다 (한빛미디어)
3. **NST Digital Transformation & Consilience Specialist**  
국가과학기술연구회 디지털전환 및 융합 R&D 전문가 위원
4. **MVP (AI), Microsoft**  
MVP (Most Valuable Professional) AI 부문 (Microsoft)  
URL: <https://mvp.microsoft.com/en-us/PublicProfile/5005119?fullName=Jehyun%20Lee>
5. **Board Member, AIFrenz**  
이사, 사단법인 에이아이프렌즈(AI 프렌즈) 학회  
URL: <http://aifrenz.org/>

### 2023

6. **MK Speaker**  
MK Speaker, 매일경제  
URL: [http://www.mkspeaker.co.kr/speaker\\_view.php?no=345](http://www.mkspeaker.co.kr/speaker_view.php?no=345)



경제/경영 | 동기부여 | 자기관리 | 인문/교양 | 부동산/재테크 | 교육 | IT/미래 | 특화

### SPEAKER



**한국에너지기술연구원 이제현 책임연구원**

**이력사항** Vienna Univ. Tech. 고체물리학 박사 취득  
서울대학교 재료공학 박사 취득  
서울대학교 재료공학부 졸업  
안전과학고등학교 졸업  
한국에너지기술연구원 책임연구원  
삼성전자 반도체연구소 수석 (3D 모델링 부서장, AI 부서장)  
서울대학교 재료공학부 연구교수

**강연주제** 데이터 분석  
데이터 시각화  
ChatGPT 활용

**저술활동외** ChatGPT의 이해와 사용방법 및 활용사례 (서울특별시 교육청 인공지능 전문가 특강 2023, <https://youtu.be/-5S8yHHsaHQ>)  
혼란한 Matplotlib에서 질서 찾기 (PyCon Korea 2022, <https://youtu.be/ZTRKojTL8M>)  
딥러닝 공개 모델 활용 정보 수집 효율화 (EOST 2022, <https://youtu.be/epOab26Zsas>)  
[수상]  
Microsoft MVP (AI)  
국가과학기술연구회 업무혁신 대상 수상  
국토교통부 장관상 수상  
삼성전자 연례기술상 수상  
삼성전자 미래창조상 수상  
삼성전자 DS부문 숨은일꾼상 수상

7. **Regular Reviewer, of IT books of Hanbit Media**  
나는 리뷰어다 (한빛미디어)



## 8. Organizer, of AI Community in Korea Institute of Energy Research

AI 학습조직 위원장: 에너지+AI (한국에너지기술연구원)

## 9. MVP (AI), Microsoft

MVP (Most Valuable Professional) AI 부문 (Microsoft)



URL: <https://mvp.microsoft.com/en-us/PublicProfile/5005119?fullName=Jehyun%20Lee>



## Most Valuable Professional

Home Explore Find an MVP MVP Reconnect

Back to search results



**Award Categories**  
AI

**First year awarded:**  
2023

**Number of MVP Awards:**  
1

## Jehyun Lee

Korea

Researcher, Developer, Designer

### Biography

A researcher, interested in real world  
A developer, trying to connect virtual and real world  
A designer, hoping happier world

## 10. Board Member, AIFrenz

이사, 사단법인 에이아이프렌즈(AI 프렌즈) 학회

URL: <http://aifrenz.org/>

## 2022

### 11. Beta Reader, “어쩌다 데이터 분석”

베타리더, “어쩌다 데이터 분석” (한빛미디어, 2022.09.)

URL: to be published

### 12. Regular Reviewer, of IT books of Hanbit Media

나는 리뷰어다 (한빛미디어)

## 13. Organizer, of AI Community in Korea Institute of Energy Research

AI 학습조직 위원장: 에너지+AI (한국에너지기술연구원)

### 14. Beta Reader, “그림으로 이해하는 인지 과학”

베타리더, “그림으로 이해하는 인지 과학” (길벗, 2022)

### 15. Mentor, of Data Mentoring

데이터 멘토링: 팀 와이즈(권로지, 김여진, 박민영, 이주연)

데이터 스토리: 데이터로 보는 기후변화와 질병의 관계 (to be published)

### 16. Board Member, AIFrenz

이사, 사단법인 에이아이프렌즈(AI 프렌즈) 학회

URL: <http://aifrenz.org/>

## 2021

### 17. Mentor, of Data Mentoring

데이터 멘토링: 팀 에이블(박예인, 김태인, 이재현, 임가현, 허예영) – 최우수상 수상

데이터 스토리: 데이터로 본 장애인 편의시설 정보 분석

URL: [https://www.bigdata-map.kr/datastory/new/story\\_31](https://www.bigdata-map.kr/datastory/new/story_31)

### 18. Contributor, of Data Story

데이터 스토리: 데이터로 보는 개봉 영화 (1) 장르, (2) 박스오피스

URL: [https://www.bigdata-map.kr/datastory/new/story\\_23](https://www.bigdata-map.kr/datastory/new/story_23)

[https://www.bigdata-map.kr/datastory/new/story\\_24](https://www.bigdata-map.kr/datastory/new/story_24)

### 19. Monitor Agency, Big Data Map

모니터링단, 통합 데이터 지도 데이터 품질 검사

URL: <https://www.bigdata-map.kr/>

### 20. Regular Reviewer, of IT books of Hanbit Media

나는 리뷰어다 (한빛미디어)

### 21. Organizer, of AI Community in Korea Institute of Energy Research

AI 학습조직 위원장: 에너지+AI (한국에너지기술연구원)

### 22. Beta Reader, “파이썬으로 캐글 뽐내기”

베타리더, “파이썬으로 캐글 뽐내기” (비제이퍼블릭, 2021)

URL: <https://bjpublic.tistory.com/417>

### 23. Beta Reader, “fastai 와 파이토치가 만나 꽃피운 딥러닝”

베타리더, “fastai 와 파이토치가 만나 꽃피운 딥러닝” (한빛미디어, 2021)

URL: [https://hanbit.co.kr/store/books/look.php?p\\_code=B7970422863](https://hanbit.co.kr/store/books/look.php?p_code=B7970422863)

### 24. Beta Reader, “한 줄씩 따라해보는 파이토치 딥러닝 프로젝트 모음집”

베타리더, “한 줄씩 따라해보는 파이토치 딥러닝 프로젝트 모음집” (비제이퍼블릭, 2021)

URL: <https://bjpublic.tistory.com/414>

### 25. Recommendation, “실무 프로젝트로 배우는 데이터분석 with R”

추천사, “실무 프로젝트로 배우는 데이터분석 with R” (위키북스 2021)

URL: <https://wikibook.co.kr/practical-r/>

### 26. Beta Reader, “데이터가 뛰어노는 AI 놀이터, 캐글”

베타리더, “데이터가 뛰어노는 AI 놀이터, 캐글” (한빛미디어, 2021)

URL: [https://www.hanbit.co.kr/media/books/book\\_view.html?p\\_code=B4998513859](https://www.hanbit.co.kr/media/books/book_view.html?p_code=B4998513859)

### 27. Recommendation, “The Secret Life of Programs”

추천사, “한 권으로 읽는 컴퓨터 구조와 프로그래밍” (책만 2021)

URL: <https://www.onlybook.co.kr/entry/secret-programs>

### 28. Beta Reader, “Practical Time Series Analysis”

베타리더, “실전 시계열 분석” (한빛미디어, 2021)

URL: [https://www.hanbit.co.kr/store/books/look.php?p\\_code=B9090689318](https://www.hanbit.co.kr/store/books/look.php?p_code=B9090689318)

## 2020

### 29. Monitor Agency, Big Data Map

모니터링단, 통합 데이터 지도 데이터 품질 검사

URL: <https://www.bigdata-map.kr/>

### 30. Beta Reader, “Hands on Machine Learning 2<sup>nd</sup> Ed. Korean Edition”:

베타리더, “핸즈온 머신러닝” (한빛미디어, 2020)

URL: [https://www.hanbit.co.kr/store/books/look.php?p\\_code=B7033438574](https://www.hanbit.co.kr/store/books/look.php?p_code=B7033438574)

## **2012**

### **31. Secretary**

Spin Dynamics in Nanomagnets, satellite workshop of ICM2012,  
August 15-18, 2012, Hoam Faculty House, Seoul National University, Seoul, Korea.

## **2010**

### **32. Editor, Book of Proceedings**

EU-Korea Conference on Science and Technology 2010,  
July 29-31, 2010, The Vienna Imperial Riding School, Vienna, Austria.

### **33. Program Committee**

EU-Korea Conference on Science and Technology 2010,  
July 29-31, 2010, The Vienna Imperial Riding School, Vienna, Austria.

## **2007**

### **34. Official home page design, official poster design and web programming**

The 4<sup>th</sup> Conference of the Asian Consortium on Computational Materials Science,  
September 13-16, 2007, Korea Institute of Science and Technology, Seoul, Korea.

## **2006**

### **35. Conference Poster Design**

The International Conference on Advanced Structural Steels,  
August 22-24, 2006, Gyeongju Hilton Hotel, Gyeongju, Korea.

---

## COMPUTER SKILLS

---

Programming Languages: Python, C/C++  
Graphics Programs: Digital Micrograph, ImageJ, Photoshop  
CAD and Visualizations: Python Matplotlib ecosystem, AutoCAD, GiD, Salome, Tecplot, Paraview

## SOFTWARE CERTIFICATES

---

### 2017

1. **SW Certificate: Advanced** 알고리즘 등급시험  
Samsung Electronics
2. **SW Expert**  
Samsung Electronics

### 1999

3. **Engineer Information Processing** 정보처리기사  
Human Resources Development Services of Korea 한국산업인력공단

## EXPERIMENTAL SKILLS

---

Specimen Preparation: PECVD, DC/RF magnetron sputtering, Ion Milling, PIPS  
Micro / Nano Fabrication: Mask aligner(MA-6), Wire bonder (KIST)  
TEM specimen preparation (Vienna University of Technology)  
Microscopy: AFM (licence A: Korea Institute of Science and Technology)  
MFm (licence A: Korea Institute of Science and Technology)  
TEM JEOL CM20 (licence C: Seoul National University)  
TEM TECNAI F20 (full time user, Vienna University of Technology)

## LANGUAGES

---

Native Language:	Korean	
Other Languages:	English*	German
Reading skills	fluent	basic
Writing skills	fluent	basic
Verbal skills	fluent	basic

\*Samsung Electronics internal certifications on English proficiency @2016: TOEIC 940, OPIc AL