

SEUNG-WOO SEO, PhD

AinB, CTO

010-2487-1683

sw32.seo@gmail.com

SUMMARY

- Experienced researcher in various fields such as material science, thermodynamics, First-Principles calculation
- Multiple collaborations with other researchers - two SCI journal papers as first author, nine SCI papers as co-author
- Currently researching material science combining with deep learning
- Self-driving and problem-solving researcher and good collaborator.
- Interested in deep learning with material science and biology

TECHNICAL SKILLS

- **Material Science:** Thermodynamics, solid state phase transformation
- **First-principles calculation:** Metal and semi-conductor calculation
- **Analytical science:** Optical microscopy, Transmission electron microscopy, X-ray diffraction
- **Deep learning:** Neural texture generation, Machine translation
- **Computational:** Programming languages (R, Python and Shell script)

RESEARCH EXPERIENCE

AinB Science

Chief Technology Officer

Standigm, Ltd

Senior AI Researcher

- Building models for drug-target interaction
- Develop linear epitope prediction model
- **Develop generative models for therapeutic antibodies**

AI division

Sep 2022 to Present

Standigm Antibody Research Lab

Oct 2020 to Aug 2022

Samsung

Staff Researcher

Samsung Advanced Institute of Technology

Dec 2014 to Sep 2020

- Thermal stability prediction of Li-ion battery cathode and anode materials
- 3D microstructure reconstruction of cathode materials from 2D slices using convolutional neural network
- **Predict synthetic path of organic materials using Seq2Seq method**
- **Publish paper to AAAI(4th in AI on Google scholar metrics)**

POSTECH

Ph.D candidate

Mar 2011 to Feb 2015

- POSCO Projects about steels manufacturing
- Self-driving project for diffusive phase transformation using phase diagram
- Automatic phase diagram calculation using C++ programming

EDUCATION

- PhD, Graduate Institute of Ferrous Technology, POSTECH, 2015
- Msc, Graduate Institute of Ferrous Technology, POSTECH, 2011
- BS, **Dept. of Physics**, POSTECH, 2009

PUBLICATIONS

- GTA: Graph Truncated Attention for RetroSynthesis, **SW Seo**, YY Song, JY Yang, S Bae, H Lee, J Shin, SJ Hwang, E Yang, **AAAI**, 2021.
- A Convergence Test of the Full-potential Linearized Augmented Plane Wave (FLAPW) Method: Ferromagnetic bulk bcc Fe, **SW Seo**, YY Song, G Rahman, IG Kim, M Weinert, AJ Freeman, Journal of Magnetism 14 (4), 137-143, 2009.
- Pearlite growth rate in Fe-C and Fe-Mn-C steels, **SW Seo**, H Bhadeshia, DW Suh, Materials Science and Technology 31 (4), 487-493, 2015.
- Ausforming of medium carbon steel, **SW Seo**, GS Jung, JS Lee, CM Bae, H Bhadeshia, DW Suh, Materials Science and Technology 31 (4), 436-442, 2015.
- EpiBERTope: a sequence-based pre-trained BERT model improves linear and structural epitope prediction by learning long-distance protein interactions effectively, M Park, **SW Seo**, EY Park, JH Kim, bioRxiv, 2022.
- A comparative study of structural changes in lithium nickel cobalt manganese oxide as a function of Ni content during delithiation process, K Min, K Kim, C Jung, **SW Seo**, YY Song, HS Lee, J Shin, E Cho, Journal of Power Sources 315, 111-119, 2016.
- A first-principles study of the preventive effects of Al and Mg doping on the degradation in LiNi_{0.8}Co_{0.1}Mn_{0.1}O₂ cathode materials, K Min, **SW Seo**, YY Song, HS Lee, E Cho, Physical Chemistry Chemical Physics 19 (3), 1762-1769, 2017.
- Computational screening for design of optimal coating materials to suppress gas evolution in Li-ion battery cathodes, K Min, **SW Seo**, B Choi, K Park, E Cho, ACS Applied Materials & Interfaces 9 (21), 17822-17834, 2017.
- Theoretical Prediction of Surface Stability and Morphology of LiNiO₂ Cathode for Li Ion Batteries, E Cho, **SW Seo**, K Min, ACS applied materials & interfaces 9 (38), 33257-33266, 2017.

PATENT

- Method and apparatus for reconstructing 3d microstructure using neural network, **SW Seo**, MIN Kyongmin, CHO Eunseog, US Patent App. 16/593,573
- Method and device for determining structure of multi-element crystal, YY Song, KM Min, **SW Seo**, ES Cho, JS Hong, US Patent App. 15/281,648

OTHER SKILLS

Software Python, Origin, Mathematica, Microsoft Word, Excel, and PowerPoint

Languages English: professional proficiency. Korean: Native