
HAPPY NEW SEMESTER
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Deep Learning (Fall 2023)

Ikbeom Jang

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CES HUFS

DL Introduction

- Instructor
- About the Course
- Discussion & Survey

Instructor

- Ikbeom Jang
  - Department: Computer Engineering
  - Contact: ijang@hufs.ac.kr

- Education
  - BS: Yonsei Univ.
  - MS/PhD: Purdue Univ.
  - Postdoc: Harvard Medical School

- Industry
  - Medical startup in Silicon Valley, USA
  - NVIDIA, USA
  - Co-founded AI startup in Massachusetts, USA

- Teaching experience
  - Full-time lecturer at Purdue Univ.
  - Guest lecturer at Harvard Univ.
  - Half-time teaching assistant at Purdue Univ. x 10 semesters

https://labhai.hufs.ac.kr

Instructor

- International AI Competitions/Challenges
  - 1st place (Winner), A-AFMA Ultrasound Challenge @ IEEE-ISBI
  - 4th place, ABCD Neurocognitive Prediction Challenge @ MICCAI

- Research keywords
  - Algorithm: Machine learning, Deep learning, Statistical methods
  - Application: Medical imaging, Brain, Neurodegenerative disease (e.g., dementia)
  - Data: Image quality assessment, Data synthesis
  - Label: Data labeling methods

- Recent publications & workshop presentations
  - CVPR
  - NeurIPS
  - MICCAI
  - IEEE ISBI

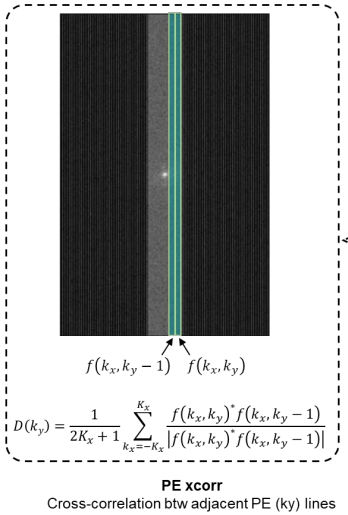
- **Recruiting undergrad interns & graduate students!**

HAI LAB

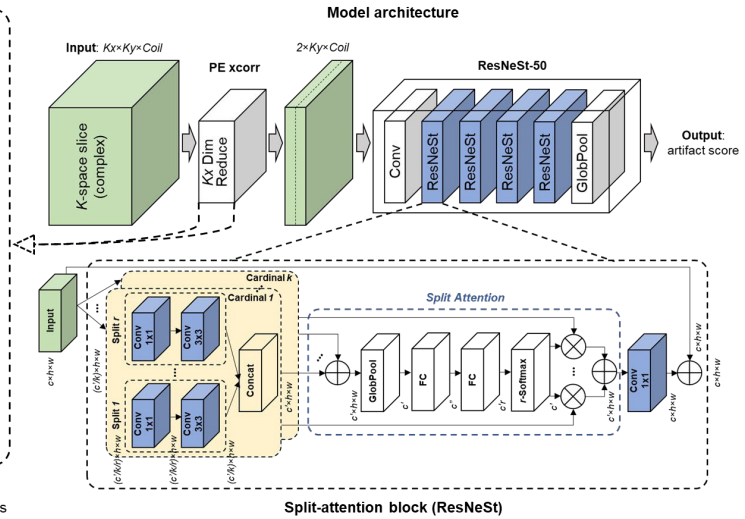
Health & Artificial Intelligence Lab @ HUFS

https://labhai.hufs.ac.kr

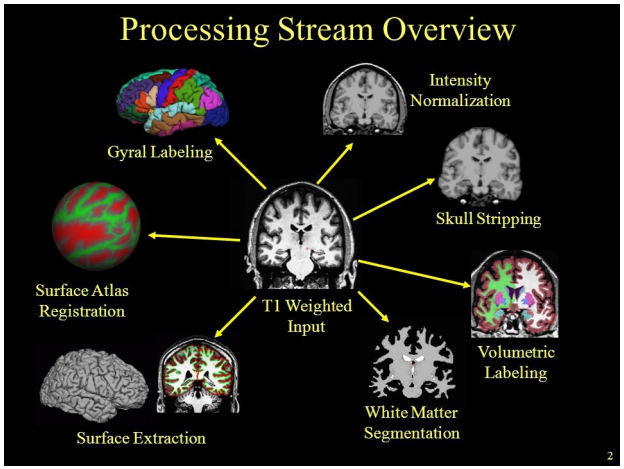
Instructor

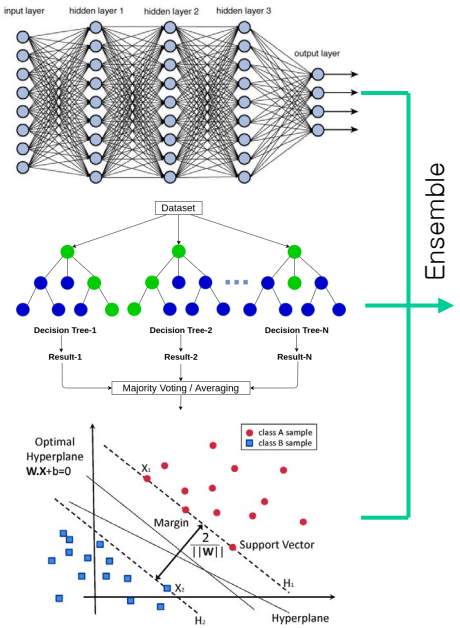


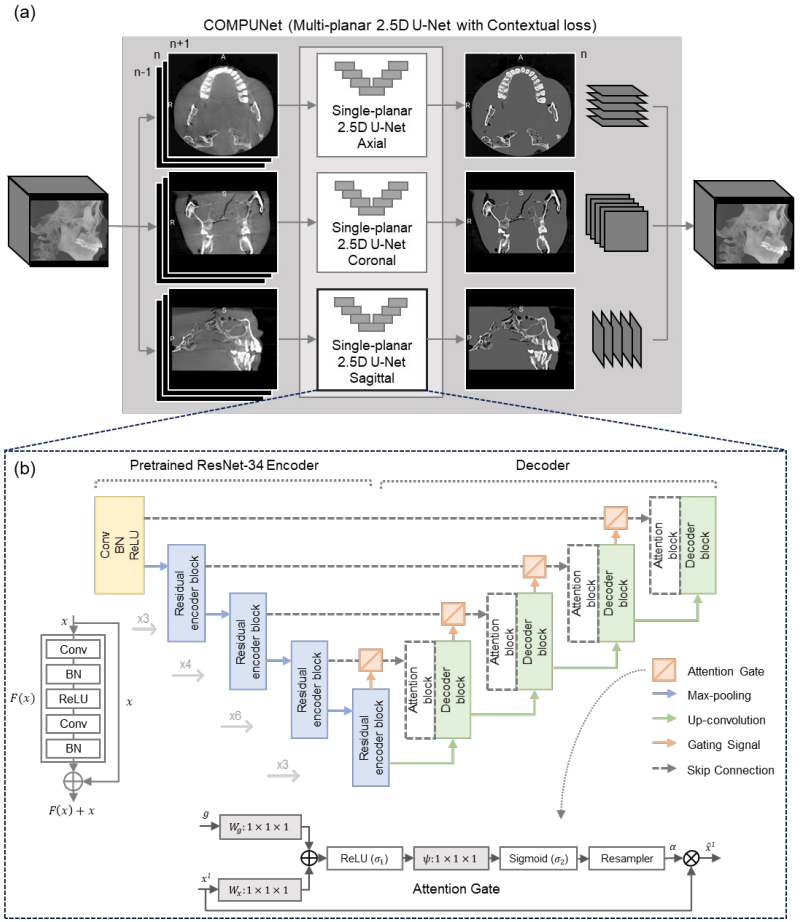
PE xcorr
Cross-correlation btw adjacent PE (ky) lines



Split-attention block (ResNeSt)







HAI LAB
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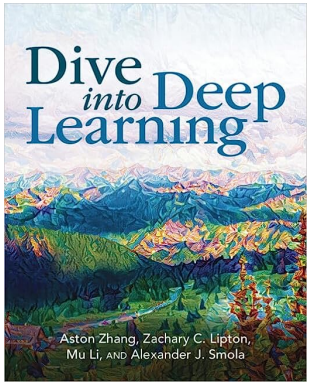
About the Course

"Where are we in the CES curriculum?"

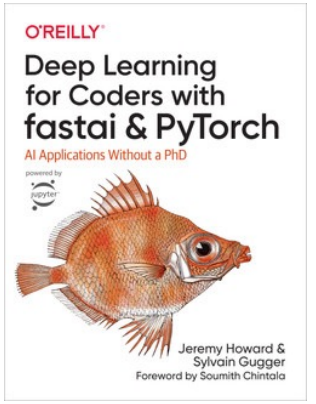
About the Course

- **Instructor: Ikbeom Jang**
  - Contact: ijang@hufs.ac.kr
  - Class hour: W 1 – 3 PM & F 12 – 1 PM @ 공학관 402
  - Office hour: W 3 – 4 PM @ 공학관 418

- **Textbook**
  - Dive into Deep Learning
    - by Aston Zhang, Zack C. Lipton, Mu Li, Alex J. Smola
    - Textbook PDF: https://d2l.ai/d2l-en.pdf
    - Website: https://d2l.ai
    - 번역본: https://ko.d2l.ai/d2l-ko.pdf



  - Deep Learning for Coders with fastai & PyTorch
    - by Jeremy Howard, Sylvain Gugger
    - Publisher(s): O'Reilly Media, Inc.
    - ISBN: 9781492045526
    - 번역본: fastai와 파이토치가 만나 꽃피운 딥러닝



About the Course

- **Course Objective**
  - Principles and concepts in deep learning (DL)
  - Hands-on skills in DL with Python
  - Recent achievements in the field of DL

- **Prerequisite**
  - Required: 1) Machine Learning, 2) One of {Computer vision, Data mining, Natural language processing, Digital Signal Processing, Big Data Processing}
  - Recommended: Data structure, Algorithms, Linear Algebra, Engineering Mathematics 1 & 2, Probability and statistics

- **Lecture Operation**
  - What do you need in senior years? Hands-on skills & experience!
  - Project-focused course: Concepts (1hr) + Lab (1hr) + Term project (1hr)
  - Final exam will be replaced with Term project
  - Make friends and network
  - Course participation and discussion are encouraged
  - Ask anything if you have questions
  - Submit your work on time. Late submissions get 0 score.

About the Course

- **Evaluation**
  - Midterm (30%) + Final (40%) + Attendance (5%) + HW (15%) + Others (10%)
  - Others may include class participation, quiz, and presentations
  - The proportions are subject to be adjusted according to students' achievement
  - Final will be evaluated by the instructor, other teams, and within the team

- **Term Project**
  - Topic: anything related to DL
  - 1) Submit a paper – e.g., conference, proceedings, arxiv
  - 2) Attend AI challenges
  - 3) Develop app/web or products

- **Important dates**
  - Midterm exam: October 20th (Fri) in class
  - Final exam: December 8th, 13th, 15th in class
  - Take this course only if you can take these exams

About the Course

- **Lecture notes & notice:** eclass.hufs.ac.kr

- **Computational resources:** Google Colab & Personal laptop/desktop

- **You will fail this course in the following cases**
  - Cheating/copying/looking at someone else (e.g., other student, internet, AI)'s work (e.g., exam, homework, report, or project) without proper acknowledgment
  - Showing your work to other student(s)
  - No presence at an exam without a legitimate reason AND a prior notice
  - Attendance below ¾ of all the classes ← university-wide policy
  - Ask when in doubt
  - No exceptions

About the Course

- **Teaching Assistant (TA)**
  - Yuri Choi
  - yurichoi@hufs.ac.kr
  - Office hour: TBD
  - Responsibility: HW, Lab, Office hour

- **Notice**
  - Syllabus & weekly schedule available in eclass
  - Weekly schedule is subject to change
  - Instructor may be out of campus for about 2 weeks.
    Lecture/lab shall be given by TA or through video in such cases.
    Planned absence: Nov 3 – conference
    Nov 10, 13, 17 – supervising department's study abroad program

- **Course feedback & suggestions are always welcome!**

Discussion & Survey

Take time and think about below:

1. **Why are you here?**
   - Why university? Why this major? Why this course?
2. Things instructors have done that **helped me**
3. Things instructors have done that **interfered with my learning**
4. What do you like to do **after graduation**?
   - If company, which company? If graduate school, which school? Something else?
5. As a computer engineer, I **hope to solve (or contribute to)** … because …
6. If you have any **health situations** that may be of concern during class, send me an email or meet me by the 2nd week

Gather around to make groups

Introduce yourself to others

Share your thoughts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