Johns Hopkins Engineering

Methods in Neurobiology

Introduction to Neurodegeneration

JOHNS HOPKINS
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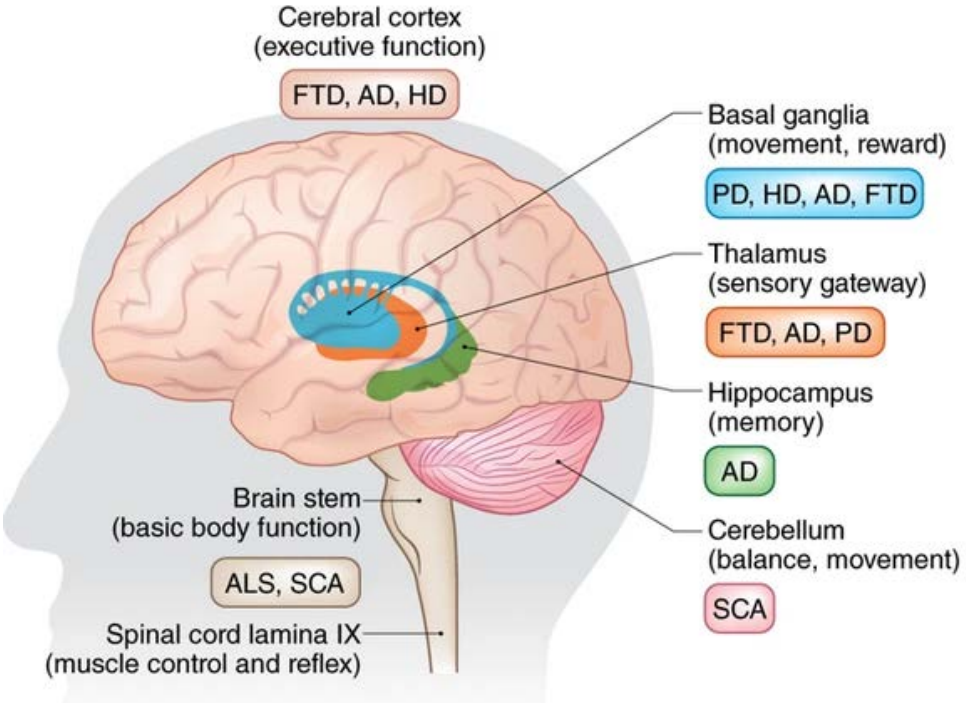
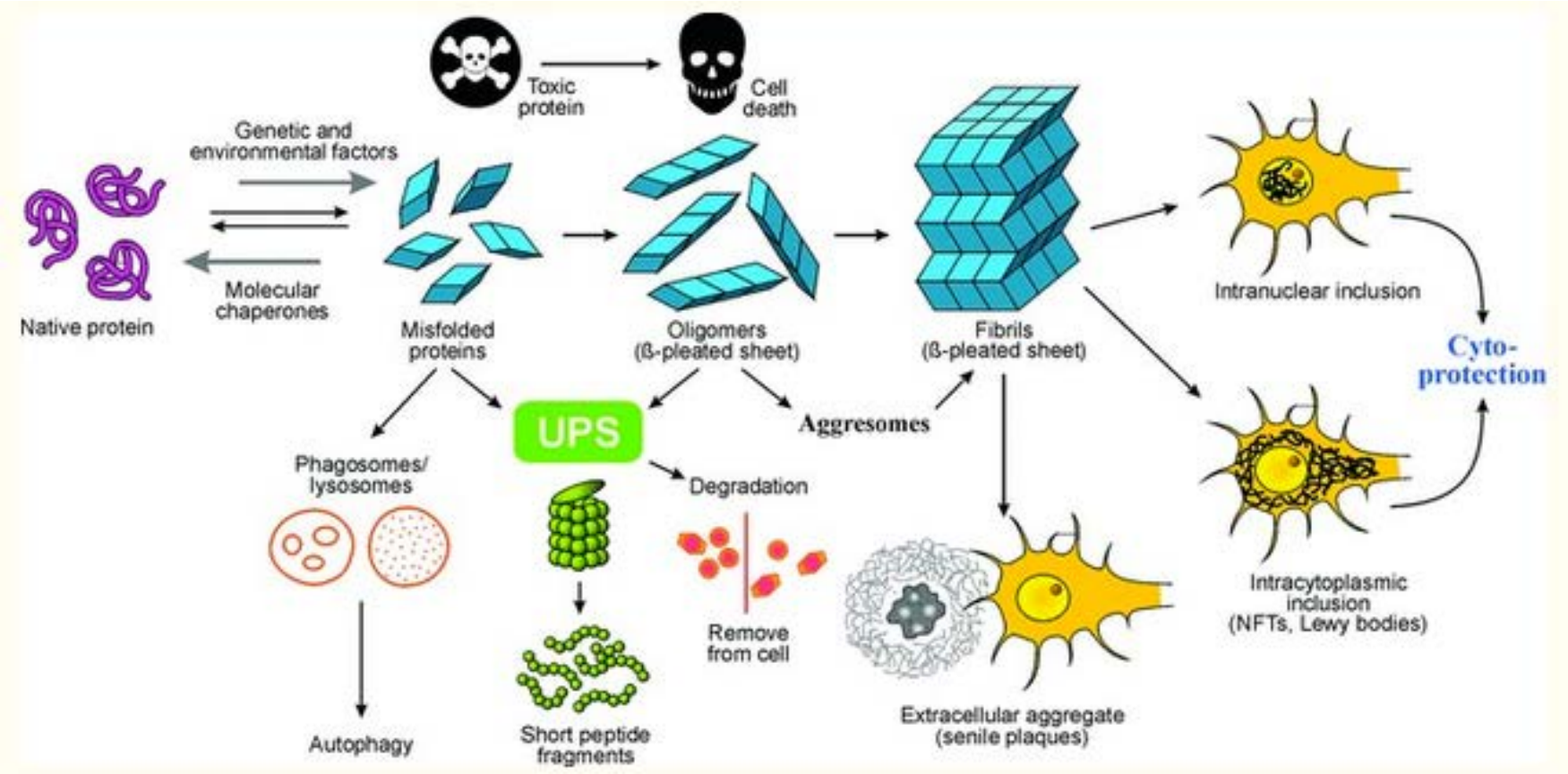
Neurodegeneration

- Pathology-related process connected to the death of specific neuronal populations.

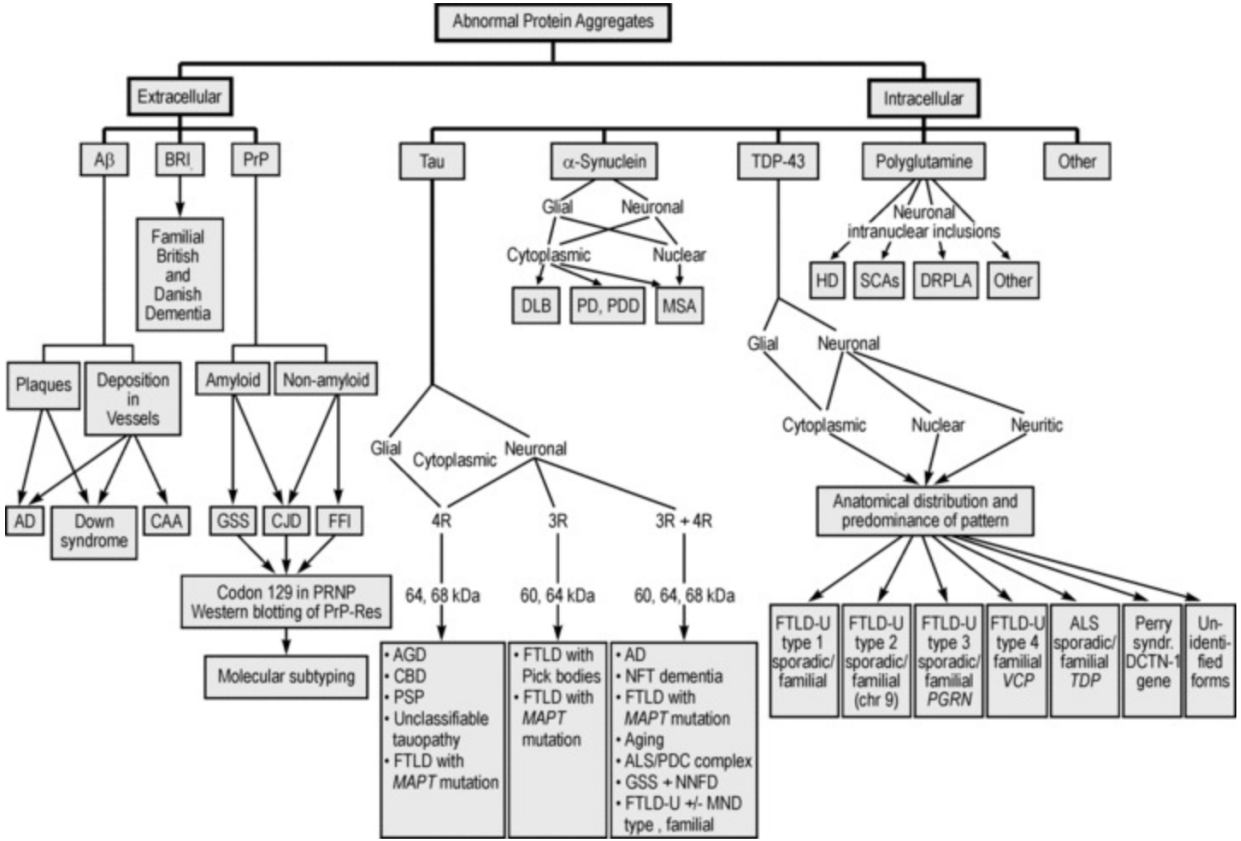
- Aging is a physiological (natural) process of cellular demise.



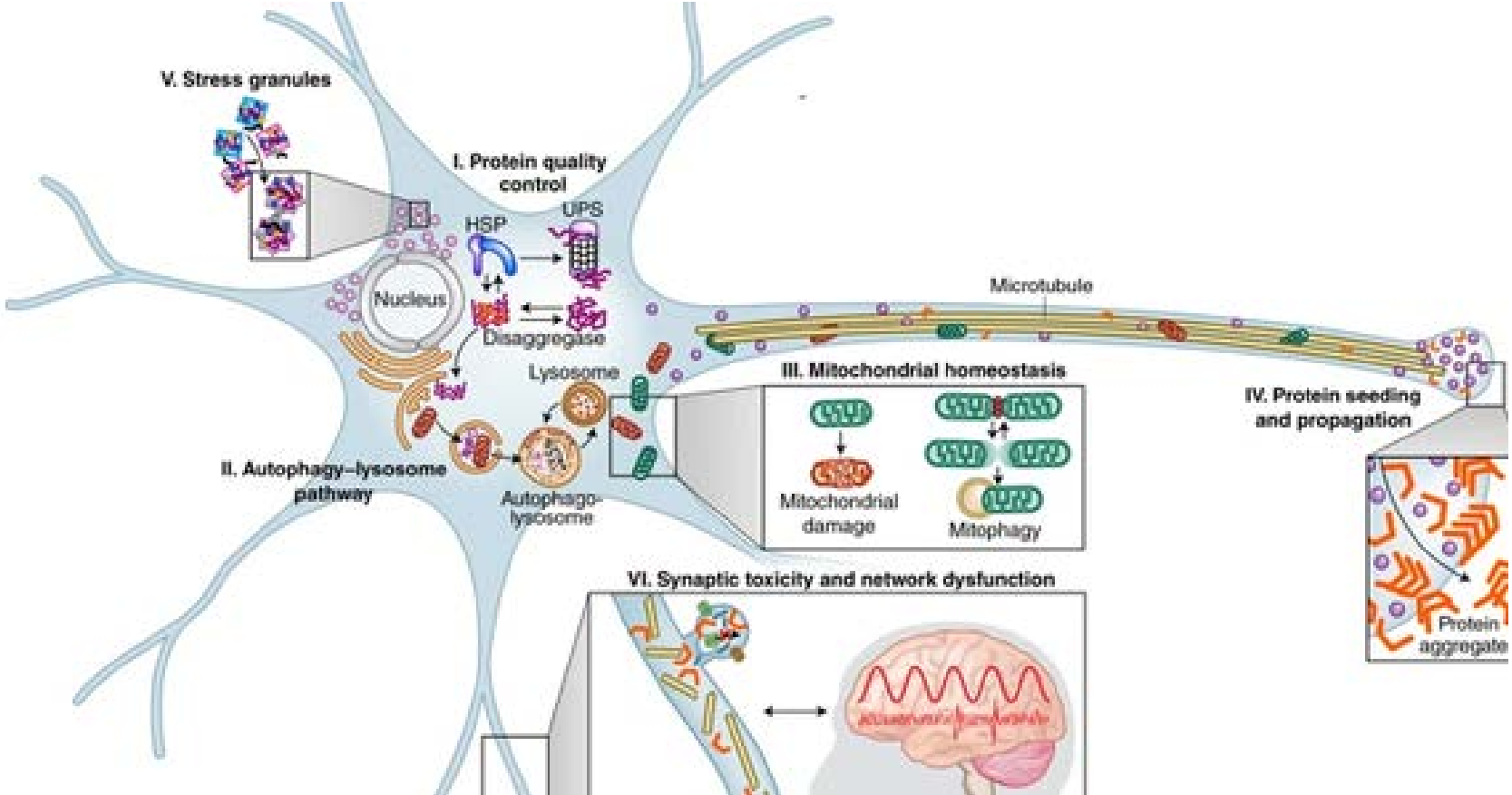
Common pathways in neurodegeneration: Abnormal protein aggregation



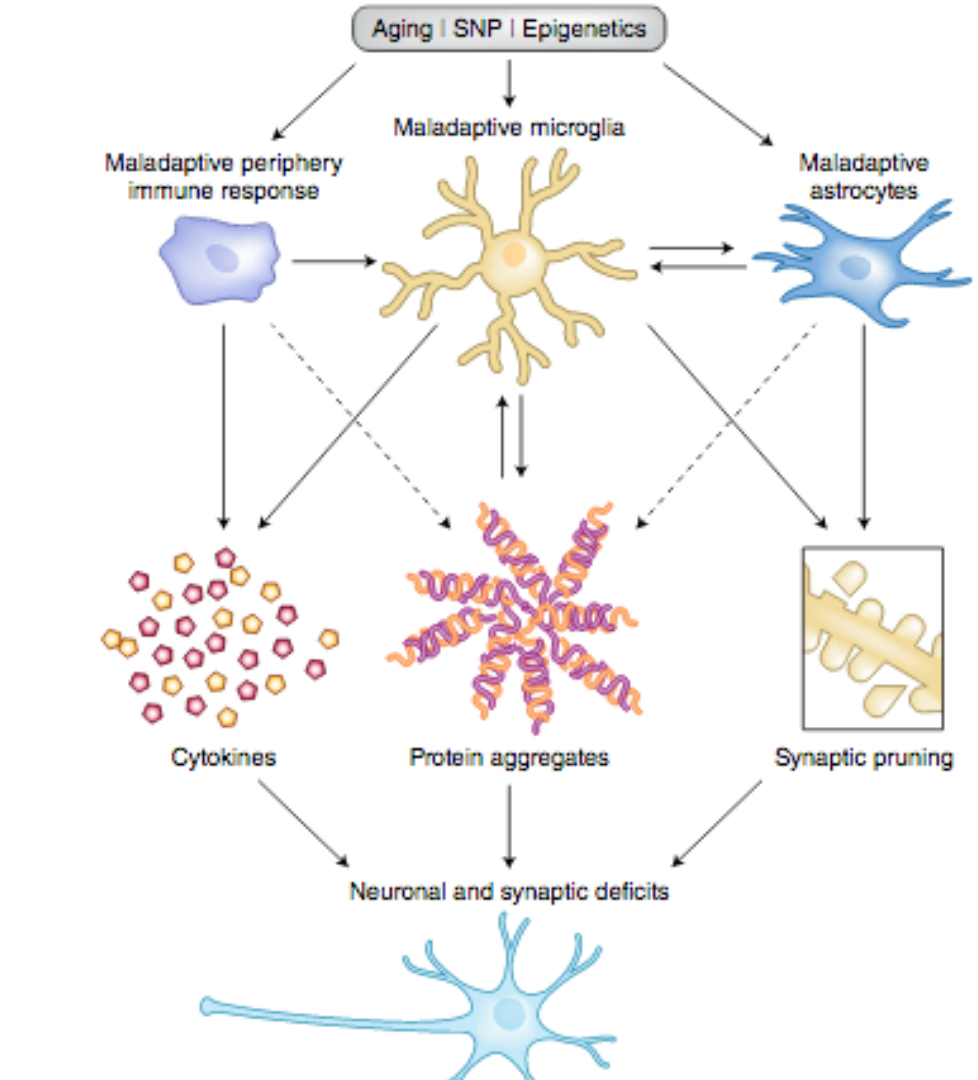
Common pathways in neurodegeneration



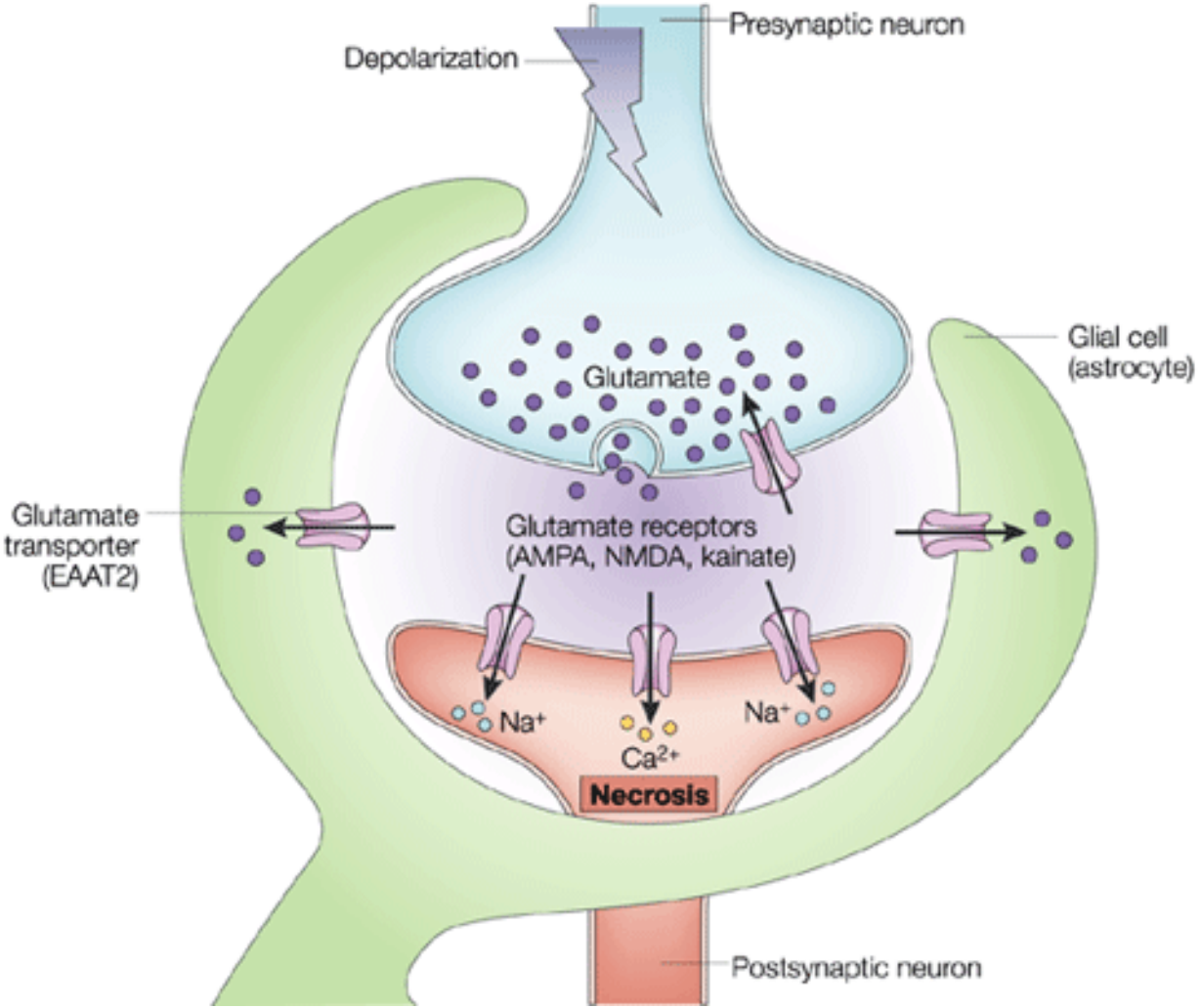
Common cellular pathways in neurodegeneration



Common systemic deficiencies in neurodegeneration: Neuroinflammation



Other common systemic deficits in neurodegeneration: Excitotoxicity

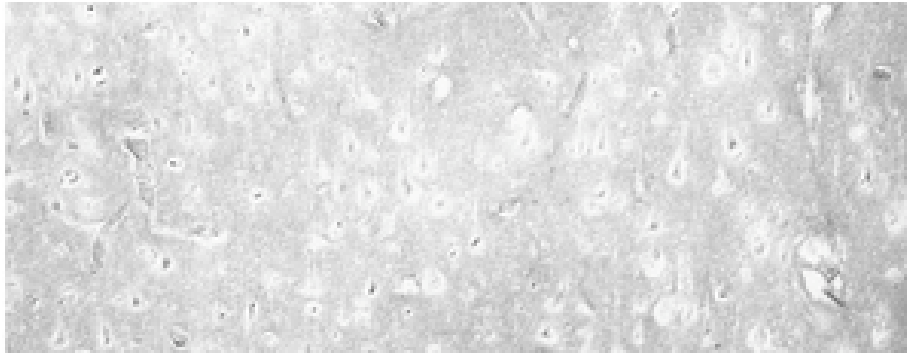


Other common systemic deficits in neurodegeneration: Iron Accumulation

- Fe^{2+} ➔Fe^{3+} resulting in ROS production
- ROS ➔Formation of plaques, oxidation of proteins, lipids and nucleic acids, glutathione consumption
- In NDDs iron accumulates within protein aggregates

AD

Control



References

Slide	Reference
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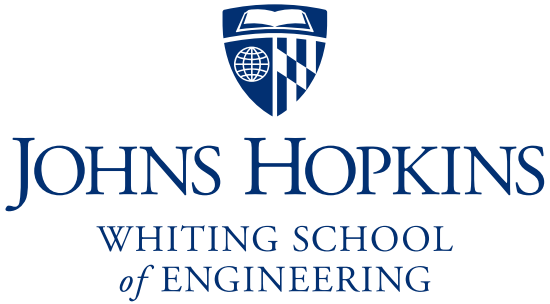

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