Annex (PhD) – List of Modules in Clusters
(Cluster revised in Semester 1, AY2017/18; applicable to current PhD CS students)

1. Algorithms and Theory

CS5215 Constraint Programming
CS5230 Computational Complexity
CS5234 Combinatorial and Graph Algorithms
CS5236 Advanced Automata Theory
CS5237 Computational Geometry and Applications
CS5330 Randomized Algorithms
CS6234 Advanced Algorithms
CS6283 Topics in Computer Science: Computational Social Science


CS5223 Distributed Systems
CS5229 Advanced Computer Networks
CS5231 Systems Security
CS5233 Simulation and Modelling Techniques
CS5239 Computer System Performance Analysis
CS5248 Systems Support for Continuous Media
CS5250 Advanced Operating Systems
CS5321 Network Security
CS5331 Web Security
CS5332 Biometric Authentication
CS6204 Advanced Topics in Networking
CS6213 Topics in Distributed Computing
CS6230 Topics in Information Security
CS6280 Topics in Computer Science: Datacentre Software Dynamics
CS6282 Topics in Computer Science: Analytical Performance Modeling for Computer Systems
CS6211 Analytical Performance Modeling for Computer Systems
CS6231 Topics in System Security

3. Knowledge Systems: Artificial Intelligence, Computational Biology, Database

CS5215 Constraint Programming
CS5228 Knowledge Discovery and Data Mining
CS5233 Simulation and Modelling Techniques
CS5238 Advanced Combinatorial Methods in Bioinformatics
CS5242 Neural Networks and Deep Learning
CS5246 Text Processing on the Web
CS5340 Uncertainty Modelling in AI
CS6203 Advanced Topics in Database Systems
CS6207 Advanced Natural Language Processing
CS6208 Advanced Topics in Artificial Intelligence
CS6220 Advanced Topics in Data Mining
CS6222 Topics in Computational Biology
CS6244 Robot Motion Planning and Control
CS6281 Topics in Computer Science: User Generated Content Analyses using Automated Discourse Processing


CS5237 Computational Geometry and Applications
CS5240 Theoretical Foundations in Multimedia
CS5241 Speech Processing
CS5242 Neural Networks and Deep Learning
CS5246 Text Processing on the Web

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CS5248 Systems Support for Continuous Media
CS5332 Biometric Authentication
CS5346 Information Visualisation
CS6243 Computational Photography
CS5343 Advanced Computer Animation
CS6206 Advanced Topics in Human-Computer Interaction
CS6207 Advanced Natural Language Processing
CS6212 Topics in Media
CS6240 Multimedia Analysis
CS6241 Advanced Topics in Computer Graphics

5. Programming Language and Software Engineering

CS5214 Design of Optimising Compilers
CS5215 Constraint Programming
CS5218 Principles of Program Analysis
CS5219 Automated Software Validation
CS5232 Formal Specification and Design Techniques
CS5272 Embedded Software Design
CS6202 Advanced Topics in Programming Languages
CS6215 Advanced Topics in Program Analysis
CS6880 Advanced Topics in Software Engineering