One-Person Projects

1. (Bayesian) Sections 6.1 to 6.5 from Tom Mitchell’s book.

2. (Reinforcement Learning) Up to page 17 from *Algorithms for Reinforcement Learning*, Csaba Szepesvári
   (There is a 2-person project further below based on the same book, but with slightly more material to be presented.)

3. *Two faces of active learning*, Sanjoy Dasgupta

4. *PAC Learning with Irrelevant Attributes*, Aditi Dhagat and Lisa Hellerstein


6. *Learning conjunctions with noise under product distributions*, Yishay Mansour and Michal Parnas

   (I am happy to discuss this as a two-person project; an extended version is available [here](#).)

8. *Statistical queries and faulty PAC oracles*, Scott E. Decatur

9. *Learning boolean functions in an infinite attribute space*, Avrim Blum
   (Happy to discuss this as a two-person project if you intend to provide more details on the proofs.)

10. *Lower bounds for PAC learning with queries*, György Turán


14. *Combining Labeled and Unlabeled Data with Co-Training*, Avrim Blum and Tom Mitchell
    (There is a related video lecture by Tom Mitchell [here](#). Co-training is mentioned in the second part, but the entire lecture is very nice and relevant.)

15. *A Complete and Tight Average-Case Analysis of Learning Monomials*, Rüdiger Reischuk and Thomas Zeugmann

16. *Nonuniform Learnability*, Gyora M. Benedek and Alon Itai

17. *Learnability with respect to fixed distributions*, Gyora M. Benedek and Alon Itai

18. *On Version Space Compression*, Shai Ben-David and Ruth Urner
19. Tracking Drifting Concepts By Minimizing Disagreements, David P. Helmbold and Philip M. Long


21. Sorting and Selection with Imprecise Comparisons, Miklós Ajtai, Vitaly Feldman, Avinatan Hassidim, and Jelani Nelson
   (I am happy to discuss this as a two-person project for the extended version that is available on arXiv.)

22. Attribute-Efficient Evolvability of Linear Functions, Elaine Angelino and Varun Kanade
   (I am happy to discuss this as a two-person project as well.)

23. Ant-Based Computing, Loizos Michael

24. Real royal road functions – where crossover is provably essential, Thomas Jansen and Ingo Wegener

25. PAC Learning and Genetic Programming, Timo Kötzing, Frank Neumann, and Reto Spöhel

26. The Compact Genetic Algorithm, Georges R. Harik, Fernando G. Lobo, and David E. Goldberg

27. On the Choice of the Mutation Probability for the (1+1) EA, Thomas Jansen and Ingo Wegener

28. When a genetic algorithm outperforms hill-climbing, Adam Prügel-Bennett

29. Methods for the Analysis of Evolutionary Algorithms on Pseudo-Boolean Functions, Ingo Wegener


31. Level-Based Analysis of Genetic Algorithms and Other Search Processes, Dogan Corus, Duc-Cuong Dang, Anton V. Eremeev, and Per Kristian Lehre
   (I am happy to discuss this as a two-person project as well; an extended version is available on arXiv.)

32. An Elementary Proof of a Theorem of Johnson and Lindenstrauss, Sanjoy Dasgupta and Anupam Gupta

33. Analogical classification: A new way to deal with examples, Myriam Bounhas, and Henri Prade and Gilles Richard

34. Analogical Classifiers: A Theoretical Perspective, Nicolas Hug, Henri Prade, Gilles Richard, and Mathieu Serrurier

Two-Person Projects

1. (Bayesian) Sections 6.1 to 6.10 from Tom Mitchell’s book.

2. (Reinforcement Learning) Up to page 25 from Algorithms for Reinforcement Learning, Csaba Szepesvári

3. (Membership and Equivalence Queries) Queries and Concept Learning, Dana Angluin

4. Solving the multiple instance problem with axis-parallel rectangles, Thomas G. Dietterich, Richard H. Lathrop, and Tomás Lozano-Pérez

5. Fuzzy Decision Trees: Issues and Methods, Cezary Z. Janikow

6. Learning From Noisy Examples, Dana Angluin and Philip Laird

7. On the Complexity of Teaching, Sally A. Goldman and Michael J. Kearns
8. Learning Switching Concepts, Avrim Blum and Prasad Chalasani
9. Evolution with Drifting Targets, Varun Kanade, Leslie G. Valiant and Jennifer Wortman Vaughan
10. The Geometry of Generalized Binary Search, Robert D. Nowak
11. Learning Random Monotone DNF Under the Uniform Distribution, Linda Sellie
12. Learning by Distances, Shai Ben-David, Alon Itai, and Eyal Kushilevitz
13. Learning with Queries but Incomplete Information, Robert H. Sloan and György Turán
14. Partial observability and learnability, Loizos Michael
15. Mick Gets Some (the Odds Are on His Side), Vasek Chvátal and Bruce A. Reed
16. Distributed Learning, Communication Complexity and Privacy, Maria-Florina Balcan, Avrim Blum, Shai Fine, and Yishay Mansour
17. Property Testing and Its Connection to Learning and Approximation, Oded Goldreich, Shafi Goldwasser, and Dana Ron
   (Only up to and including Section 4; that is, Part I of the paper in the first 23 pages.)
18. Analogical Dissimilarity: Definition, Algorithms and Two Experiments in Machine Learning, Laurent Miclet, Sabri Bayoudh, and Arnaud Delhay