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The minimum objective was to implement a feed-forward neural network, and a genetic algorithm that interacted with the neural network, allowing it to improve over time. This would need to be connected to a Draughts Interface that allowed the neural network to play Draughts.

Intermediate Objective

The intermediate objective involved the implementation of an interface to play against the trained result, and the implementation of a Monte-Carlo Tree-Search (MCTS) algorithm. Also, as the genetic algorithm included a tournament mechanism which would play games simultaneously, this needed to be implemented to run in parallel.

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Cummulative Growth

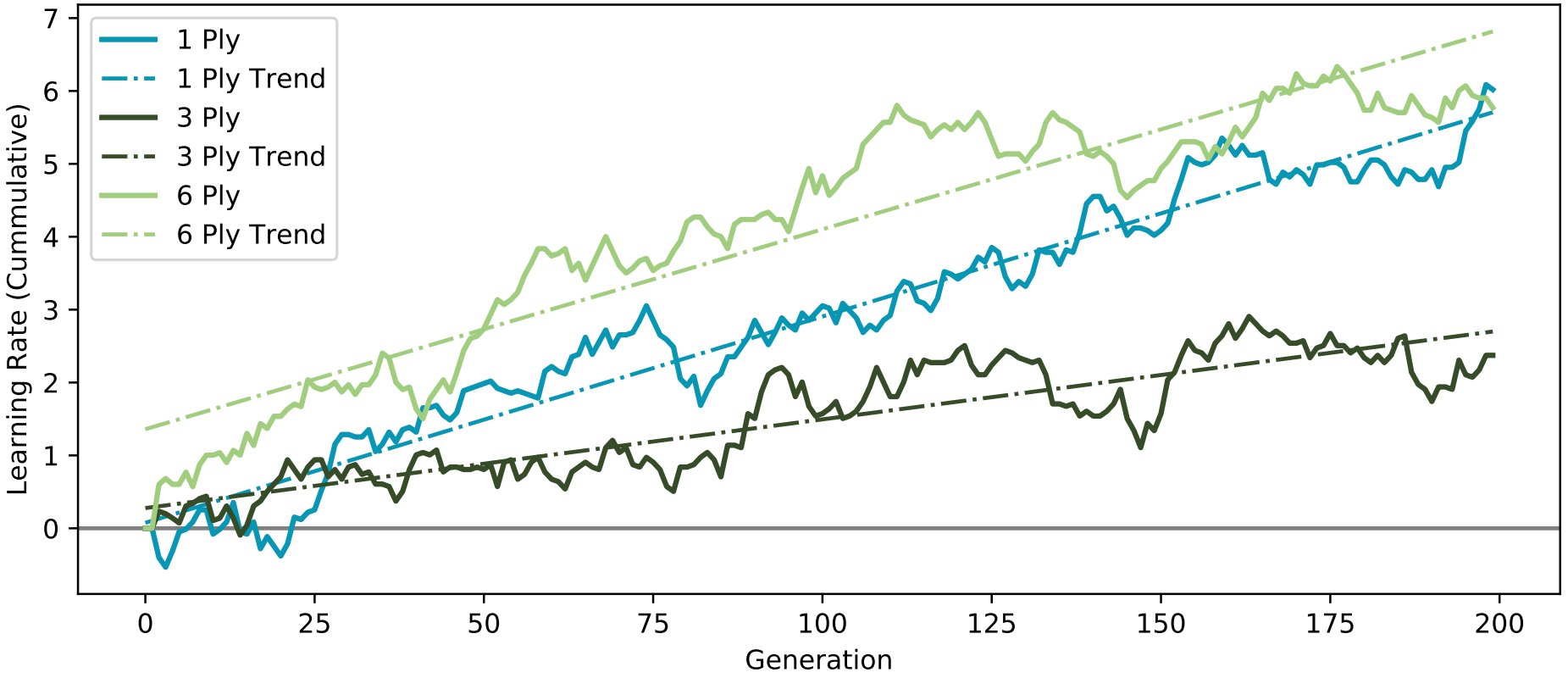

Figure: A chart showing the cumulative learning rate across the generations for the different ply-depths.

Trained System Statistics

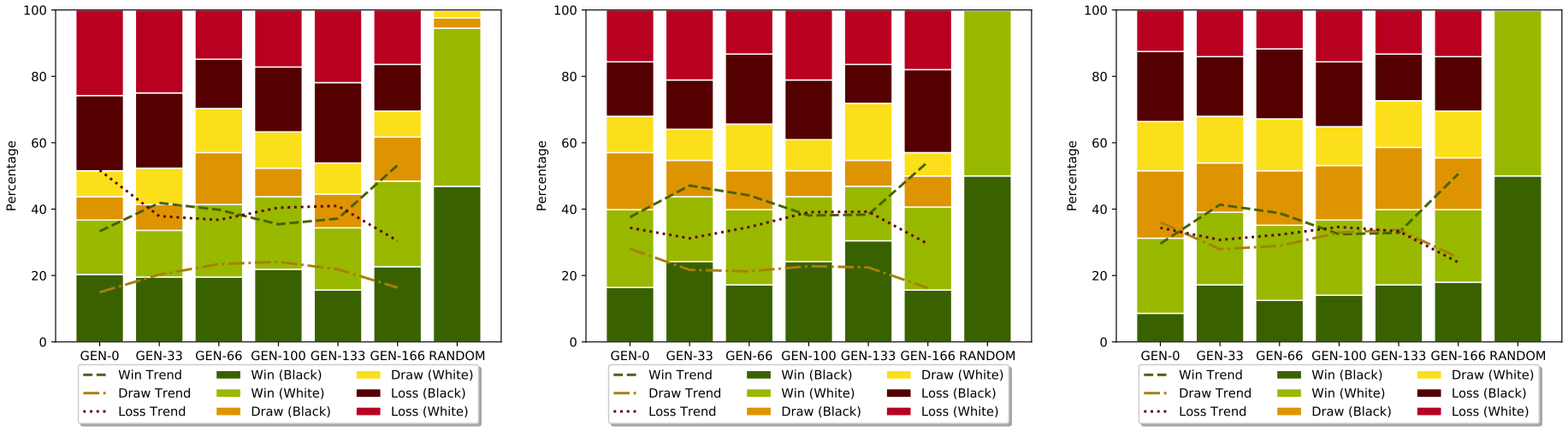

Figure: Charts showing the performance of the trained systems against their ancestral counterparts.

Champion Genome Distribution

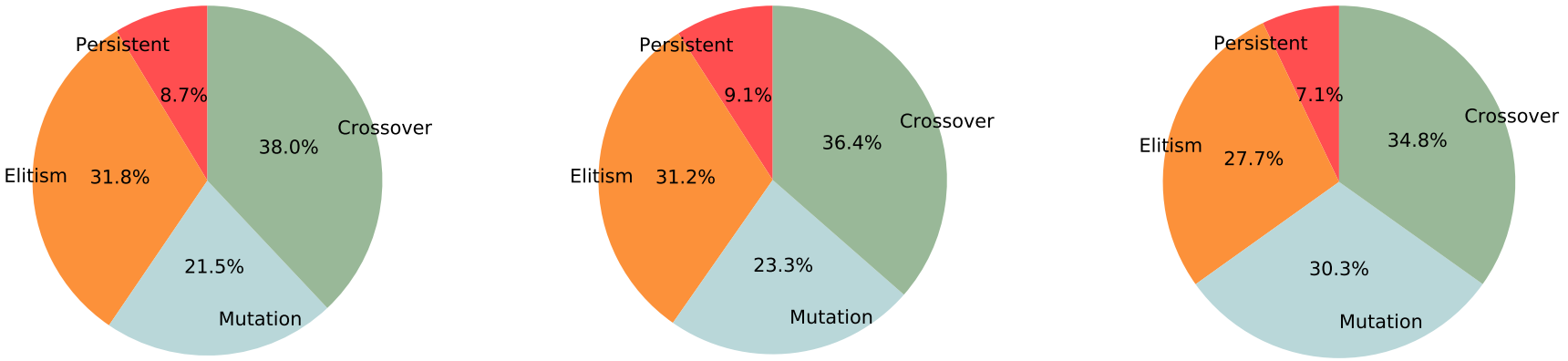

Figure: Distributions of the different genomic identities across the tournament champions.

Score Distribution of Different Champion Genomes

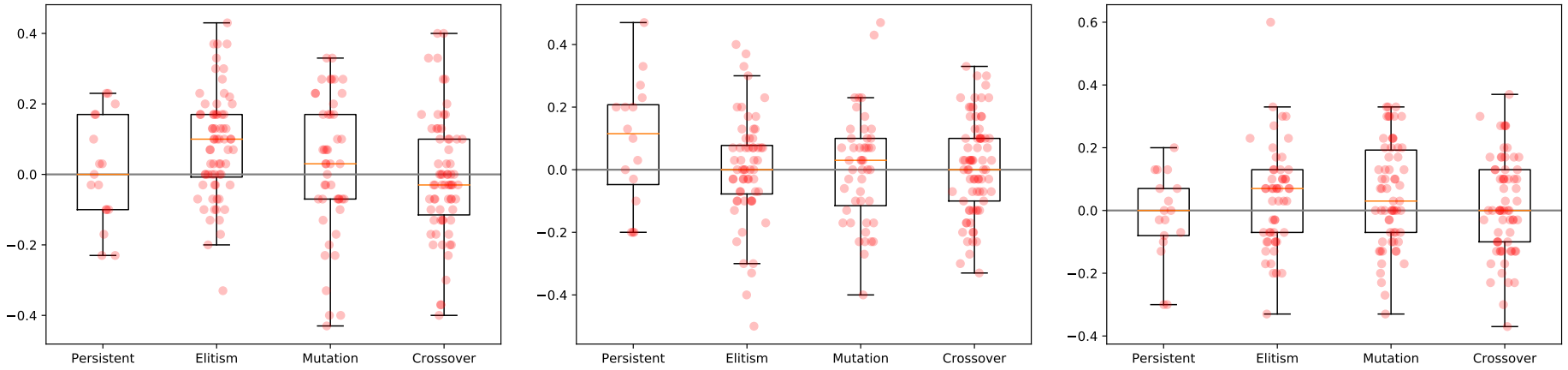

Figure: Box-Plots of the different genomic identities and their distribution of scores. The yellow line in the box represents the mean score.

Average Move Count

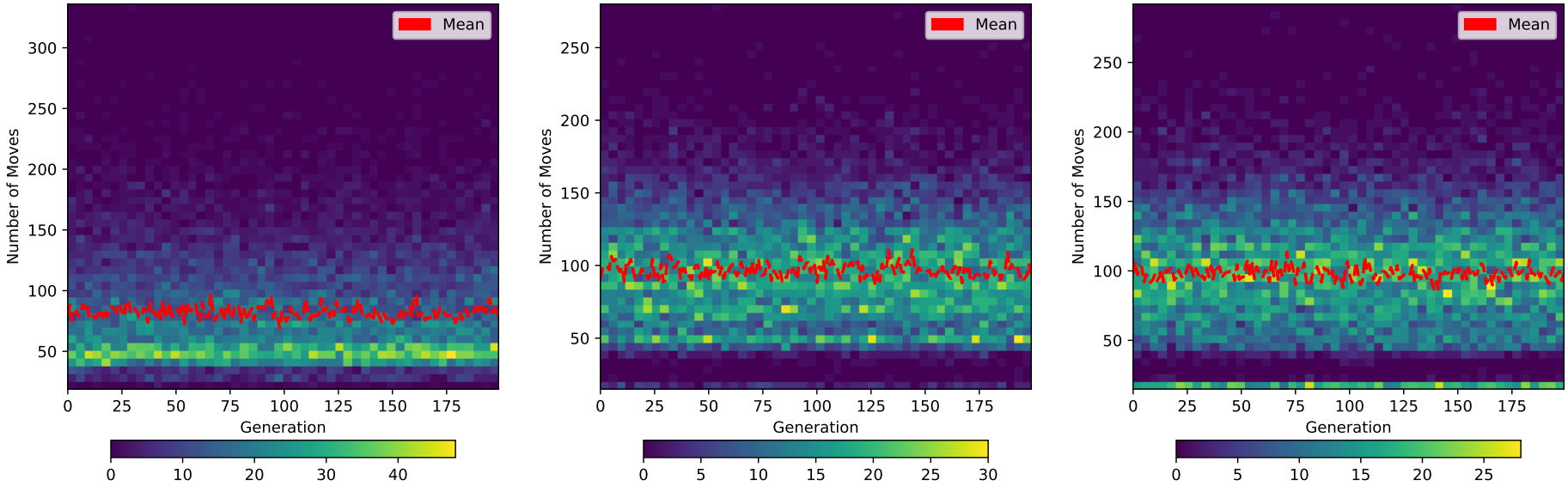

Figure: 2D Histograms representing the number of moves played in the games played in the generations.

CPU Timings

	1-Ply	3-Ply	6-Ply
Generation Mean	0:04:24	0:17:32	0:38:45
Net (All Generations)	7:21:25	1 day, 5:14:41	5 days, 9:12:25

Figure: Mean and Net running times of system training for the various depths.

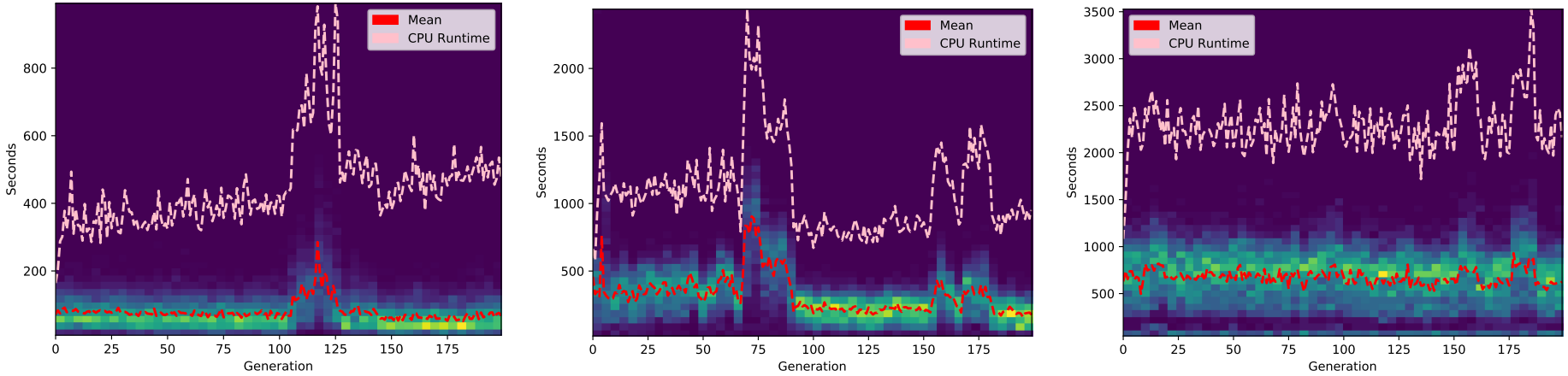

Figure: 2D Histograms of the average times spent on the games during the simulations.