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Fallen trees at [Tunguska](#), 1927 ^[2]

Tunguska,

an [UCI](#) compliant [open source chess engine](#) by [Fernando Tenorio](#), written in [C++11](#), released in December 2016 on [GitHub](#) ^[1]. Tunguska may be build to run under [Windows](#), [Linux](#) and [Mac OS](#). A new version should fix the inappropriate [sliding piece attack](#) implementation (see below) either by using [leading zero count](#) intrinsics or [magic bitboards](#).

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Description

Board Representation

Tunguska [represents the board](#) using a [bitboard array declaration](#) along the the obligatory [8x8 board](#). [Sliding piece attacks](#) are generated ray-wise by the [classical approach](#). While this approach relies on scanning the nearest blocker in positive and negative directions using [bitscan forward](#) or [bitscan reverse](#), aka [trailing](#) (tzc) or [leading zero count](#) (lzc), Tunguska implements these zero counts, in particular lzc, without machine instructions. [Kim Walisch's](#) and Mark Dickinson's [suggestion](#) of a [parallel prefix fill](#) for a [MS1B](#) separation along with [De Bruijn](#) multiplication and lookup is likely the cheapest general implementation without hardware support, but still far to slow for this purpose considering other sliding piece attack approaches.

Search

So far the [search](#) uses [iterative deepening](#), [alpha-beta](#) with [transposition table](#), [check extensions](#), [null move pruning](#), [late move reductions](#) and [futility pruning](#). The [move ordering](#) is enhanced by using the [history heuristic](#) and [killer heuristic](#).

Evaluation

Tunguska's [evaluation](#) relies on [material](#), [piece-square tables](#), [mobility](#), various [piece specific terms](#), [pawn structure](#), and [pawn shield](#) and [zone attacks](#) concerning [king safety](#). All feature weights are aggregated as distinct [middlegame](#) and [endgame scores](#), finally interpolated by the current [game phase](#) - a technique known as [tapered eval](#).

See also

- [Disaster](#)
- [Geography](#)

Forum Posts

- [New engine Tunguska 1.0](#) by [Fernando Tenorio](#), [CCC](#), December 11, 2016
- [Tunguska engine v2.0](#) by [Fernando Tenorio](#), [CCC](#), September 09, 2017

External Links

Chess Engine

- [GitHub - fernandotenorio/Tunguska: UCI compliant chess Engine](#)
- [Tunguska 1.0 64-bit in CCRL 40/40](#)

Misc

- [Tunguska event from Wikipedia](#)
- [Podkamennaya Tunguska River from Wikipedia](#)

References

1. [^] [New engine Tunguska 1.0](#) by [Fernando Tenorio](#), [CCC](#), December 11, 2016
2. [^] [Fallen trees at Tunguska, 1927](#), [Tunguska event from Wikipedia](#), [Wikimedia Commons](#)

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