1. Given a non-empty array containing only positive integers, find if the array can be partitioned into two subsets **such that the sum of elements in both subsets is equal**

2. we propose to improve the clustering using an unsupervised algorithm that **alternates between** two steps

3.

on a validation set in the

unsupervised setting, and learning it is **superfluous​​**

4

. key to introduction: cite emptiness, referred to empty figures, tables so that readers will be sure...

5. The golden standard: who is doing what to whom

6. **undermine**something...

7. Add "that" before a long clause!

8. Here are two sentences before and after revising:

Before: In Eq. (6), the first three equations guarantee that the zeroth, first and second moment of the original distribution match those of the post-regridded respectively, whereas the fourth equation, equivalent to Eq. (2), preserves the distribution's shape.

After: In Eq. (6), the first three equations guarantee **that** the zeroth, first and second moment of the original distribution match those **moments** of the post-regridded **distribution** respectively. The fourth equation, equivalent to Eq. (2), preserves the distribution's shape.

Don't go for long sentences! And once there are multiple nouns between the pronoun and the noun it refers to, repeat the noun!

9. respective, corresponding

10. risk **reduction**is reducing the statistically expected loss from a particular type of risk. Risk **mitigation**means reducing the expected loss if an event happens

11. There is rather large body of sad experience to indicate that a concurrent program can **withstand**very careful scrutiny without revealing its errors

12. prohibitively expensive

13. in which the variables **range over** finite domains

14. follow from =  result from

15. rounded rectangle

16. For notational convenience

17. Possessive: Charlie**'s**

18. **lucid**proof

19. i.e. is used to combine 2 sentences. Seen!

20. specious: superficially plausible, but actually wrong.

21. AI is not suffering from a lack of computer power to compute NP hard problems, it's suffering from a lack of anyone having good ideas what algorithms to implement to create common-sense and reasoning at the level of even a one-year old.

22. The human brain does not need NP=P to run, it just has a good architecture, and gets by with the approximate answer. The trick is knowing what abstraction level a problem needs to be looked at, and an answer approximated to solve it, not calculating the traveling salesman problem optimally.

23. The other elements are left without any specific order, except that none of the elements preceding nth are greater than it, and none of the elements following it are less.

24. The elements in the ranges shall already be ordered according to this same criterion

25. Glossary of terms: in the appendix, list all the symbols.. good strategy

26. Generally speaking, maximal is an adjective to denote the largest of something. The maximal speed of that vehicle is 200mph. The more common usage is maximum, which can be used as either an adjective or a noun by itself. Even if the maximum speed of my car is 200mph, my maximum is only a 100

27. linearithmic = O(N\*logN)

28. Otherwise, up to linearithmic:

29. a sample of size s

30. Use google scholar to find if the phrase is used.

31. Confirmed: "probability distribution **conditioned on** D" via google scholar. You can describe a conditional distribution is conditioned on something

32. The number of principal components is less than or equal to the **smaller** **of the** number of original variables or the number of observations

33. since the **formation** of XX⊤XX⊤ can cause loss of precision

34. I would caution...

35. **upcoming**figures

36. An afterword: ...

37. It appears > it seems

38. The way this appears in English is that usually a noun used to modify a noun stays in the singular

39. **in contrast to** ..

40. Suppose we have the following hypothetical C++ library, consisting of the two files X.h and X.cpp, and implementing the two classes X and Y which we want to use in R.

41. the aforementioned ..

42. Those small events became qualitatively the same to Kmeans in high dimensional space, so Kmeans tends to grow a few clusters indefinitely while singularizing the rest

43. Our algorithm has time complexity **proportional to**

44. An excerpt from..

45. Correct sentence: the two functions then can map the $w\_1$ of earthquake and flood to their own $w\_2$ and $w\_3$.

46. For instance,..

47. **practicality**of our approach

48. give Boolean expression evaluates to 1

49. **originates**from

50. Strictly speaking no comma is required. But because there are two fairly long clauses to the sentence, a comma between them provides a convenient separator. It does not change the meaning and is not absolutely necessary, but it makes the long sentence simpler to parse and therefore the meaning is easier to understand

51. reference rules: <http://libguides.murdoch.edu.au/IEEE/text>

52. This equation holds. This equation holds. Both good

53. negligible, ubiquitously, unanimously

54. I have been taught, without justification, to write integer positive numbers from 1 up to and including 10 in words, and all the rest using numerical symbols.

But this was a general rule, when I was learning my (native) language as a youngster. Nowadays, a sub-rule also appears somehow fitting to my eyes: the distinction between whether the number is used to count the cardinality of a collection, or to inform about the magnitude of an entity.

I would write "Let two firms engaged in oligopolistic competition" rather than "let 2 firms..." (this is "counting the cardinality of a collection"). I would also write "Let fifty firms..." rather then "Let 50 firms"

But, I would write "the value of this parameter is set to 6", rather than "... is set to six".

55. define by > define as

... defined by [a formula]

... defined as [a value]

56. at random > randomly

57. accelerate speed, achieves better local minimum.

58. run-throughs is valid verb

59. goes as follows:

60. wait something for sometime

61. enter something/somebody in something: enter someone or something in(to) something

62.  and is able to open Chandler's unlocked door, the photographer leaves disappointed

63. nascent: (especially of a process or organization) just coming into existence and beginning to display signs of future potential.

64. In standard written English the possessive pronoun his is used to refer to a singular indefinite pronoun unless the group referred to is known to be all female. **Incorrect**: Is everyone happy with their gift?

**Correct**: Is everyone happy with his gift?

65. consist of = comprise

66. equate, good word

67. to offset an error, defect, or undesired effect his enthusiasm **compensates**for his lack of skill

68. occurrence of R and the occurrence of B.. (event happening)

69. Assumption A has its practical implications...

70. It is known that X and Y are comonotonic (countermonotonic) if and only if their copula equals M (W). Notice the parentheses usage

71. We refer to Nelsen (2006), Kaas et al. (2001),

Salvadori et al. (2007), and the references **therein**.

72. Nolan's reputation and success with The Dark Knight **helped secure** the film's $100 million in advertising expenditure

73. **Considered by** film critics to be one of the best films of the 2000s and one of the best superhero films ever,[6][7] the film received critical acclaim

74. he added the **caveat**that the results still had to be corroborated.

75. 总的来说: in general, do not always think about "on average"...

76. About "the" and other articles in science writting:

<https://www.scitechedit.com/en-GB/helpful-resources/white-papers/the-use-of-articles-in-english-writing>

77. displace...

78. is assumed to be + outcome. is assumed as + something

79. Substantial contributions, substantial distributions...

80. Shrunken by a factor of 10

81. allows one to explore many facets of the posterior distribution

82. We **prefer**that

the development of strategy **be**closely linked to its execution. We **prefer** the house **be** kept simple but elegant

83. common usage: costs **are**a decreasing function of the + singular form

84. Next, ...

85. The sum satisfies A = B... correct sentence

84. The work belongs to the fields of A and of B.

The work belongs to the fields of A and B.

The work belongs to the field of A and B.

The work belongs to the field of A and of B.

86. To fetch the immediate previous and next row

85. $D\_{\text{A}}$ and $D\_{\text{C}}$ are at their **individual minimums (maximums)** when $D\_{\text{A+C}}(\gamma)$ **reaches its minimum / maximum.**

86. to a negligible extent

87. Crest

88. Trouble verb means “困扰”

89. intellectual stimulating

90. problem XXX can be transformed to a YYY problem: problem XXX can migrate to a YYY problem.

91. This Syllabus is subject to change in the future.

92. is greater than -> exceeds, surpasses... antonym: fall behind, fall below!

93. The theoretical worst case bounds for the LLL algorithm and its variants are not encouraging. However, these techniques tend to perform much better in practice than in theory.

94. The idea in all these algorithms is to precompute and store an exponential number of intermediate quantities in a lookup table, and use this to speed up the overall algorithm.

95.  pivotal role

96. root cause

97.  improve architectural utilization

98. Why has not this idea been realized yet?

99. In the sequel (in the rest of the document), 2.2 will be referred to as the conditional independence assumption

100. It suffices to say

101. inductive reasoning vs deductive reasoning

102. "except by use of"

103. situations can arise where the algorithm will never converge but reaches steady state

104. There is vast literature on

105. Implemented mix-convolution supervised by nonstationary full covariance matrix for flood

106. Super-linear speedup, super-exponential speedup,

107. which **collectively** constrain

108. Think about dropping "the" before plurals to reduce the number of "the" in sentences. See if you can drop "the" because the noun is unique, causes no ambiguity and reads smooth.

109. During the time, FLSSS has evolved in a quite complex system...

110. It is multithreaded C++ with structural design oriented to performance.

111. meticulous engineering FLSSS

112. Intel compiler is highly tuned for Intel processors

113. in layman's terms

114.  Furthermore, the new algorithm lends itself well to parallel implementations

115. New notation for set

116. Solve to optimality.

117. Equation ... holds.

118. Primary update, secondary update, major update, minor update..

119. a wide variety of.

120. a prespecified free parameter

121. take as input the number of degrees...

122. 这样的东西反过来又... conversely

123. have been developed to extremize such functions. Proximal methods ...

124. Reinforcement learning differs from standard supervised learning in that correct input/output pairs[clarification needed] **need not be** presented, and sub-optimal actions need not be explicitly corrected

125. The problem stems from

126. New partial differential equations governing the response-excitation

127. Of late,..

128. Go is exemplary in many ways of the...

129. S is the Euclidean space Rn or a subset thereof.

130.  new solution which may be feasible for (P) and which has an objective

131. Computational results indicate that if the resource constraints are not overly restrictive, then making these reassignments frequently produces a feasible solution

132. Problem-specific heuristic

133. Our computational experience shows that in practice, ...

134. scientific rigor

135. The **overarching**idea is that many linear programs are too large to consider all the variables explicitly.

136. no loss of generality. Without loss of generality.

137. circumvent something...

138. for the sake of brevity

139. replace, supersed, substitute.. have close meaning. But think about their subtle differences...

140. x  and y are reduced with increasing t..

141. Machine learning: garbage in, garbage out... good joke.

142. truncating at a **sensible**number of terms.

143. in concert with..

144. tail measures of risk compare 45

favorably with

145. we assume that the order of convolutions **governs** the order of comonotonizations.

146. is alleviated.

147. nitpicking.

148. Coupled with sth... on top of sth...

149. abundantly...

150. Instead, it has an almost featureless ellipsoidal **shape typical of**most giant elliptical galaxies.

151. commercial RDBMS to **avail**a number of advanced features

152. See Algorithm 2 Step 6 and animation **therein**

153. The proof **built upon** the program of Richard S. Hamilton to use

154. Many consider it to be the most important unsolved problem

155. despite its **immense**importance

156. phenomena of electrodynamics as well as of mechanics **possess**no properties

157. The core idea is that

158. capably navigate

159.  The routines in MKL are **hand-optimized** specifically for Intel processors.

160. which will be derived shortly.

161. predictor accuracy of the hybrid predictor and of the NT predictor.

162. easy-to-predict loop-back branches

163. A few tens of ...

164. , in which case...

165. Put differently, we have...

166. **Superimpose**

167. temporal: relating to time.

168. and ability to write **sizable**software in Java or C++.

169. So it **simplifies** to a whole number.

170. Note that the value of the top-most node shown here cannot be **ascertained**

171. how to write **blazingly**fast and **scalable**code.

172. between generalized linear models and the general linear model, two **broad**statistical models

173. we don't know the joint distribution of X **outright**

174. a **real-valued**, n-dimensional vector

175. **Recourse**.

176. was **bolstered**by the discovery.

177. rather, you should also discuss the results **qualitatively**, point out anything surprising, and comment on possible explanations.

178. Jokingly: AI is the study of finding clever hacks to exponential problems. Often when a clever hack is finally found, or when computers finally get fast enough to address that particular problem successfully, the world no longer thinks of the problem as one belonging to artificial intelligence... Artificial intelligence consists of all the NP hard problems that have not yet been solved.

179. It is part of what differentiates a top-notch analytics professional and a person who blindly runs algorithms.

180. going directly for ID+AB is **error prone**

181. render + adj == make + adj: enough rainfall … to **render**irrigation unnecessary. **rendered**him helpless

182. The name 'exponential smoothing' is **attributed**to the use of the

183. This approach **guarantees to find** the shortest path, if one exists

184. you would **invoke** the following commands

185. The Gibbs sampling algorithm is used to generate an instance from the distribution of each variable in turn, **conditional on** the current values of the other variables

186. A tree that is too large **risks**overfitting the training data

187. For categorical predictors, the splitting point is represented by an integer, whose **binary expansion** gives the identities

188. **Informal**introduction

189. Throughout this paper we type vectors in bold (x), scalars

in regular (C or b), matrices in capital bold (X). Specific  
entries in vectors or matrices are scalars and follow the corresponding  
convention.

190. Ridge regression is known to shrink the coefficients of correlated predictors towards each other, allowing them to borrow strength from each other. **In the extreme case of** k identical predictors

191. The program **defaults to**a standard font.

192. and **as such** cannot influence the final result.

193. The profiling of the clusters **is arguably the** most challenging.

194. a **visual fit** of the variogram points

195. **inadvertently**without knowledge or intention

196. for unlabelled data has proven to be a **thorny issue**

197. See Freund (2018) **for a full account of these innovations**.

198. These tiers will not necessarily be **synchronous**

**199,**we have to **interleave**planning and execution

200. it has a **ready**interpretation as a similarity measure.

201. This algorithm has a **subtle bug**, in that it may never terminate if the policy continually switches between two or more policies that are equally good. The bug can be fixed by adding additional flags, but it **makes the pseudocode so ugly that it is not worth it**.

202. an approach that is theoretical **as opposed to** practical

203. Readers will learn how to structure Big data in a way that is **amenable** **to**ML algorithms.

204. One had to cram all this stuff into one's mind for examinations, whether one liked it or not. This coercion had such a deterring effect upon me that, after I had passed the final examination, I found the consideration of any scientific problems distasteful to me for an entire year. --- Einstein

205. The prototypical supervised-learning update procedure is ...

206. strikingly different...

207. The hallmark of...

208. In particular, we consider an exponential weighting with recency, in which alterations to the predictions of observation vectors occurring..

209. This result contradicts conventional wisdom.

210. **Whereas**conventional, supervised-learning approaches disregard

this temporal structure, TD methods are specially tailored to it.

211. Although a model is required, the model **need**

**only generate** sample transitions, not the complete probability distributio

212. Instead, each maximizing action can be given a **portion of the probability** of being selected in the new greedy policy. Any **apportioning scheme** is allowed as long as all submaximal actions are given zero probability

213. 4 km LIGO arm by a thousandth of the width of a proton,[11] **proportionally equivalent to** changing the distance to the nearest star outside the Solar System by one hair's width

214. **debilitate**

215. testbed

216. which computes the value function V , given matrix-vector Q =

(Q1, . . . ,Qn).

217. **shortly thereafter**

218. To learn in a more **structured**environment.

219.

220. **Prototype**(verb) algorithms.

221. the spacing between knots is decreased **in proportion to** the curvature (2nd. derivative) of the data.

222. Thus, LOESS provides less complex data analysis **in exchange for** greater experimental costs

223. Several letters are used in the **literature**to denote the kurtosis

224. **Should better**do something.

225. Interaction, interplay.

226. propensity for doing something. (an inclination or natural tendency to behave in a particular way)

227. Deep diving --- impressive resume. Implement customized algorithms for solving specific problems.

228. Just to share some of my thoughts when I was working with ANNs. There is still a question of why ANNs perform so well in image and speech recognition. I think this should be unsurprising because the model is the output of a genetic algorithm running through millions of years with a population size of millions or billions. Also, patterns that can be well recognized by humans or ANNs are in fact quite distinctive if characterized in the extremely high dimensional space created by the neural nets. The large number of parameters did not yield overfitting because the patterns could have few variations after being mapped in that space. This is all due to the smart feature engineering by the neural nets, e.g. convolutional NNs for image classification. ANNs are more certain to work well on problems that can be well solved by any average people.

229. In the snesim approach one **shortcuts**this step entirely by

230. performed the analysis --- this is right and nice.

231. With his from-childhood fascination with

232. Perelman's work survived review and was confirmed in 2006, **leading to his being** offered a Fields Medal, which he declined

233. ensemble classifiers **are among the most** accurate general-purpose classifiers available

234.  Moreover, PERT**lends itself to theoretical analysis**

235**.**and the node is **terminal**

236**.**For comparability,

237. **commensurate with** experience

238. subject to **relatively mild assumptions**

239. **deemphasizing**weights

240. In AI, the hardest problem is to come up with a good representation.

241.  **For easier reading**, the error columns have been scaled so that

242. This also allows for a **principled, unified approach** to optimization.

243. Image features are **spatially localized**.

244. Convolutional layers were themselves once novel **building blocks, building blocks** with strong biases toward vision tasks,

245. The first lesson from neuroscience is that much of animal behavior is **innate**, and does not **arise**from learning.

246. Translated in English, this means..

247. connecting two **previously unconnected** nodes

248. Meditation may affect more of the brain **than supposed**

249. All three paradigms **seldom**exploit a common trait of real-world optimization problems: instances of the same type of problem are solved again and again on a regular basis, maintaining the same combinatorial structure, but differing mainly in their data. That is, in many applications, values of the coefficients in the objective function or constraints**can be thought of as being sampled from the same underlying distribution**

250. We show that our framework can be applied to a **diverse range** of optimization problems over graphs.

251. **Central**to our approach is the combination of a deep graph embedding with reinforcement learning

252. Since the dual maximization problem is a quadratic function of the {\displaystyle c\_{i}} c\_i subject to linear constraints, it is **efficiently solvable**by quadratic programming algorithms.

253. ID3 is the **precursor**to the C4.5 algorithm.

254. Real world measurements contain errors both due to the quality of the **instrument**

255. belaboring: belabor = argue or elaborate (a subject) in excessive detail.

256. The assumption appears to make little sense in the real world, although in practice it seems just to do fine.

257. Although I tend to focus on statistical machine learning, my research passion is actually artificial intelligence. I like to **build large integrated systems**,

258. "discrete analog"

259. What if, instead, we could **find a more principled method** to scale up a CNN to obtain better accuracy and efficiency?

260. to **scale up CNNs in a more structured manner**

261. **In combination with** previous work which showed that changing other major object dimensions such as color (Geirhos et al., 2018) and object size relative to the context (Eckstein et al., 2017) do not have a strong detrimental impact on CNN recognition performance, **this highlights the** special role that local cues such as textures seem to play in CNN object recognition.

262.  Further, it may**obviate the need**for some

263. authentication system that has **adversely affected** all Microsoft services

264. Generic regularization strategies such as dropout, pretraining, and model averaging do not **confer** a significant reduction in a model’s vulnerability to adversarial examples.

265. Our explanation suggests a fundamental tension between designing models that are easy to train due to their linearity and designing models that use nonlinear effects to resist adversarial perturbation. In the long run, it may be possible to escape this tradeoff by designing more powerful optimization methods that can successfully train more nonlinear models.

266. you should be able to describe the **differences**and **commonalities**between gradient boosted trees and random forests.

267. it is developed with both deep consideration in terms of **systems optimization** and principles in machine learning.

268. This is **advantageous**since a sparse embedding matrix means.

269. provide a **self-contained** introduction to

270. goal **since the advent of** MRI in the 1970s

271. be eliminated **in the course of** image reconstruction.

272. between objects as the base of its similarity metric, this can be changed **as appropriate**.

273. **under the constraints that** W is an **orthonormal**matrix

274. and hence gradient descent often **takes much worse steps** than Newton's method. This is **counterbalanced**, of course, by each step of gradient descent being so much cheaper to compute than each step of Newton's method.

275. Newton's method that accounts for the second order derivative (Hessian), is better than gradient descent because

276. Here is one **quotation**

277. With a single attention head, averaging **inhibits**this

278. A language is a set of valid sentences. What makes a sentence valid? You can break validity down into two things: **syntax**and **semantics**. The term syntax refers to grammatical structure whereas the term semantics refers to the meaning of the vocabulary symbols arranged with that structure. Grammatical (syntactically valid) does not imply sensible (semantically valid), however. For example, the grammatical sentence "cows flow supremely" is grammatically ok (subject verb adverb) in English, but makes no sense. Similarly, in a programming language, your grammar (syntax rules) may allow ID EQUALS ID but the language may only allow the sentence if the text matched for ID does not represent a type name (a semantic rule).

279.  In particular, **it was shown to rely** on shallow h

280.  tasks that **involve looking** back.

281. Many of these applications **bottleneck on** human beings to write.

282. should be **cognizant**of

283. Unlike CNNs, the Transformers have little cognitive motivation

284. The blocks are **interleaved**by down-sampling operations **consisting of** max-pooling layers with stride 2 which halve each spatial dimension.

285. The integral does not allow us to do that because it is **intractable**.

286. A **more elaborate approach** is to perform

287. Inference is often notably slower, but not usually as much so as to render usage unpractical

288. Compare and contrast.

289. ANN (nearest neighbor) performs quite efficiently for point sets ranging in size from thousands to hundreds of thousands, and in dimensions as high as 20.

290. C++'s advantage is not all about speed which is commonly discussed, but about the pointer arithmetic that allow you to perform **out-of-box** optimization.

291. We have been made aware that

292. corner cases.

293. contigous vs continous.

294. We will not ask you to calculate FFT by hand or anything like that which requires way too much time and is tedious and **error-prone**

295. Turing machines**are a central object**of study in theory of computation.

296. Thus I will express my fondness to your pleasantry.

297. The maximum element is the greatest element. A maximal element is an element in the subset of the greatest order. Be aware of the difference in writing! In "I want to buy this at minimal cost" and "this action carries a minimal risk", minimal means "very small" as opposed to "the lowest possible"; the same distinction is true of maximum and maximal.

120. sentence: That's the sort of painting I like: simple, suggestive and unpretentious.

110. "In-place algorithm", "auxiliary storage", "cache locality", "explicit recursion"

214. heretofore: before now

120. That is speculative analysis.

121. what is the mechanism behind this **cessation**of growth please

122. That may change in the future; new tech could emerge. Note how the semicolon is used.

123. As statisticians, we tend to overestimate the power of this line of thinking in optimization.

124. fallacious.

125. A stronger assumption is necessary; in dimensions four and higher there are simply-connected.

126. Great battle between business and aesthetics.

127. real-world networks, and when present, it exhibits itself with an inversely proportional between the clustering coefficient and the node degree.

128. has a corresponding 'Sell' operation in an **upcoming**day

129. Greenspan's idea was to obfuscate his true opinion in long complex sentences with obscure words so as to intentionally mute any strong market response

130. We believe these belated changes are reactive in nature and do not go nearly far enough in reversing a longstanding pattern of underperformance.

131: leading zeros, trailing zeros.

132: We will **confine ourselves to** the finite difference method

133: An **analytical**problem becomes an **algebraic**one

134: Keras is an API designed for human beings, not machines. Keras follows best practices for reducing **cognitive load**: it offers consistent & simple APIs, it minimizes

125. Under normal circumstances

126. database and do extra work to **ameliorate**the shortcomings or challenges.

127. representative to **act in his stead**and sue the banks, Henderson said.

128. will **miss**the forest **for**the trees

129. **finetuned**, is a valid word.

130: If one load balancer fails, and there’s nothing to **failover to**, the overall service will go down

131: In her remarks, Pelosi mused about both the **majesty**and the **fragility**of democracy

132: **When trained on** mid-sized datasets, these ...

133: Transformers lack some of the inductive biases inherent to CNNs.

134:  We find that **large scale training trumps inductive bias**

135: **With quadratic cost in the number of pixels**, this does not scale to realistic input sizes. Thus, to apply Transformers in the context of image processing

136. are **baked** **into**each layer

137. understand the **interplay**between the amount of training data, AugReg, model size and compute budget

138. Lin **abstained from**taking an active role

139. **delineate**

140. **excessive**

141. The **unfailing quality**of kindness in his eyes.

142. A leading example is ...

143. In light of this, ...

144. Empirical Bayes methods can be seen as an approximation to a fully Bayesian **treatment**of a hierarchical Bayes model.

145. This comes with a **modest**computational cost.

146. For **brevity** we only show

147. obstinate: stubbornly refusing to change one's opinion or chosen course of action, despite attempts to persuade one to do so.

148.  Position advantage is **situational**

149. **glory details**

150. The speed difference will be nearly **imperceptible**

151. Our deepest gratitude. // There is no “the”.

152. It **supersedes** the original bfgs routine and requires substantially fewer function and gradient evaluations

153. A popular inexact line search condition **stipulates** that αk should first of all give

sufficient decrease in the objective function f

154. on highly **ill-conditioned** problems it may fail to obtain high accuracy in the solution

155. The **eponymous** battle

156. and any failure will have **cascading** effects across the board.

The subset sum problem is a very good problem in a sense that you can learn a lot of things in it. You can go as high as the number theory and you can go low to the hardware optimization. In the middle you can be creative as much as you want and devise all kinds of algorithms.

Package description: This package solves the Subset sum problem and its derivative problems in practical settings. A novel algorithm for solving the one-dimensional Subset sum with an error threshold induced algorithms for the multi-Subset sum, the multidimensional Subset sum, and the multidimensional Knapsack problem. Algorithms for the last two problems run in a multi-threaded environment. Package updates of the current version include (i) implementation of the multi-Subset sum; (ii) fundamental data structure changes for enhanced cache locality and for better chance of SIMD vectorization; (iii) no more violations to the initial bounding index vectors for solving the multidimensional Subset sum. Compiling the source package with aggressive optimizations, e.g., flagging g++ "-Ofast" could largely accelerate the computing speed on some architectures. To do that, please (a) install Rtools; (b) search for file name "Makeconf" in the R directory; (c) open the Makeconf consistent with your system architecture (32 / 64-bit) in a text editor; (d) scroll down to line "CXX11FLAGS = -O2  -Wall ...", and change "-O2" to "-Ofast" then save; (e) install FLSSS from source; (f) in Makeconf, change "-Ofast" back to "-O2" in case other package sources refute "-Ofast".

However, the cache mechanisms beat the advantage of binary search in low dimensional space.

FLSSS started as a hobby project in 2014. New algorithms have been added and refined sporadically.

Newton said, ``If others would think as hard as I did, then they would get similar results.''

I think this post makes an old mistake. This mistake is the dream of the universal homogeneous solution.

In the beginning of the last century, a handful of great minds had the same mistake. They wanted the Mathematics 2.0, which would be entirely based on Logic, until Gödel was managed to show the impossibility. The early AI repeated the mistake. The formal verification too. They all failed in their original goal of the universal homogeneous solution. But provided many good solutions that we can mix with others.  
So probably there is no homogeneous solution for any sufficiently complex phenomenon but what can we do? Well, I’d say that the only solution is to mix suitable solutions at every level. For example, in a neural network, you have to mix different types of layers. In a driving controller, you have to mix different types of neural networks. Then, in a software, you have to mix usual stored-programs and neural networks.  
My conclusion: Neural networks are NOT the universal solution. They are and will be a solution among others for software and other problems. So we need to design neural networks to work with other solutions, not to eradicate.

GOT刚火的时候，有人向我力荐，张口就来一句"这个剧超好看，里面有僵尸跟火龙", 打消了我仅有的一丝好奇.. 数年后抱恙将就一观，病中惊坐，意犹未尽，马上跟读两卷原著，一声长叹，由指环王引发的白人古装头痛症终于痊愈。GOT之剧本，演员，音乐，剪辑，特效，不见其全貌，不知其雄奇。这种水准的

影视作品也只有在文学成品上...

期望更多的作家不被这个技术时代

迭代的昏天黑地所惊倒，辟地沉潜，洞察人性中单纯的常数，复杂的变量，揭示不变的善恶美丑，和以旋律，继续给这个世界留下丰富的故事和回忆，也给技术留下发挥的空间，奠定基础

辟地沉潜

情人早逝，部将叛离，渡远求义终殉义，鸦衣红雪地。救弟未果，只身绝境，平视云川行铁骑，重生百劫续。伤心人，壮丽雄浑，悲剧悲哀悲阔，快慰皆寂寞。王子忧郁，拔剑茫然，虽万千人亦往矣。

情人逝，至亲去，渡远求义终殉义，鸦羽红雪地。万念寂灭，茕茕孑立，平视云川凝铁骑，重生百劫续。王子结郁，拔剑释然，虽万千人深往矣。

how to ask for a recommendation letter. <http://blogs.hbr.org/glickman/2010/04/how-to-ask-for-a-reference-let-1.html>

statement of purpose

从能量建模，量子力学，信息论，需要概率论统计学的帮助。。。

先讲本身条件 It's a pity that fewer and fewer people to care about contradiction in the set theory

if we can appropriately redefine the analysis system with the probabilistic model derived from quantum physics, the innovations must be uncounted. <-that's my purpose here->

we build our math system also based on some intuitiveness, what's the difference between math and physics? 尽管很多人不赞同数学成为经验主义的

Back in college, my physics professor Guangping HE, who is in the quantum field, and I discussed the possibility to reform the mathematics tool to adapt the uncertainty of measuring the quantum mechanics. During my junior year, I constructed a thesis, proved that based on Real Analysis and Parallel Computing theory, under a machine controlling system, the time has to be sliced in a bunch of slots to be mathematically self-consistent, which led another way, a mathematical way, that revealed the nature of time is the performance of entropy, and also showed the appropriateness of quantum mechanics in a more intuitive way. It was appreciated by Professor HE. The thiese wasn't published because I considered although

During the time when I was thinking about my thesis, I was also taking the Partial Differential Equations course. The method to build the solution for the second Thermal Equation interested me. The key is to use a physics equation to simulate a mathematical concept of the partial differential equation, then assume such simulation right, and then solve the equation. After getting the root, an inverse test shows the assumption is true. I felt stunning when I first saw the technique, because it's hard to believe a pure mathematician without any physics background can produce this kind of idea. This experience gave me 2 ideas, one is to lead me thinking about if our mathematical tools are too delicate, especially when the variable goes to infinitely big or small, the second is that mathematics can be inspired by physics.

Based on my time-slot thesis, if the objects that need to be controlled are countable infinite, then the controllers will be uncountable, thus the system will be unrealistic. Traditional mathematical tools cannot satisfy anymore. The main problem is on the truth or falsehood of **continuum real analysis.我的理论是如果宇宙里一个控制中心能控制到可数个物体，那么时间必然是不连续的。量子物理已经揭示了宇宙中最小微观物质的变化是不连续的，为什么我们还要坚持实数集上的连续性而继续研究？数学家会说数学不是物理，物理是以实验为基础，以观测结果定向，但数学何尝又不是以几个直觉为基础的公理一步步地建立起整套体系的呢？为什么不能增加一个假设**

**My main purpose to pursue a statistics or probability phd is try to**redefine the mathematics analysis system更具体的说是重定义极限的语言 with probabilistic model, the innovations must be uncounted。我本科学的是数值计算，这门学科加上现代计算机可以带给我们任意精确的解，传统的微积分理论似乎不再受到工程学的青睐。但是很多微分方程的解的不确定性依然需要纯粹的数学理论去解释，如果能建立一套用概率去描述的极限语言，一定能够完美地解释其中的问题和进行预测。

you'll find that i don't micromanage. i don't shy away from delegating.

|  |  |
| --- | --- |
|  | Virus-free. [www.avast.com](https://www.avast.com/sig-email?utm_medium=email&utm_source=link&utm_campaign=sig-email&utm_content=webmail&utm_term=link) |