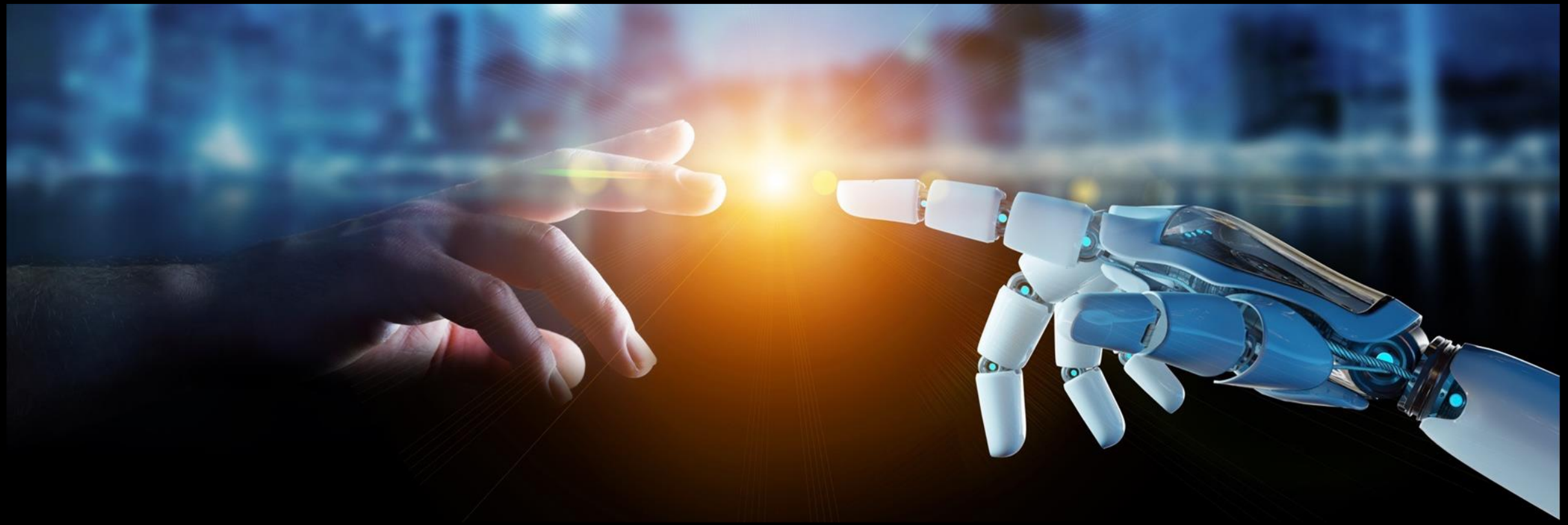

PROTECTING SOFTWARE IMPLEMENTED INVENTIONS

Vishen Pillay | Partner | Adams & Adams

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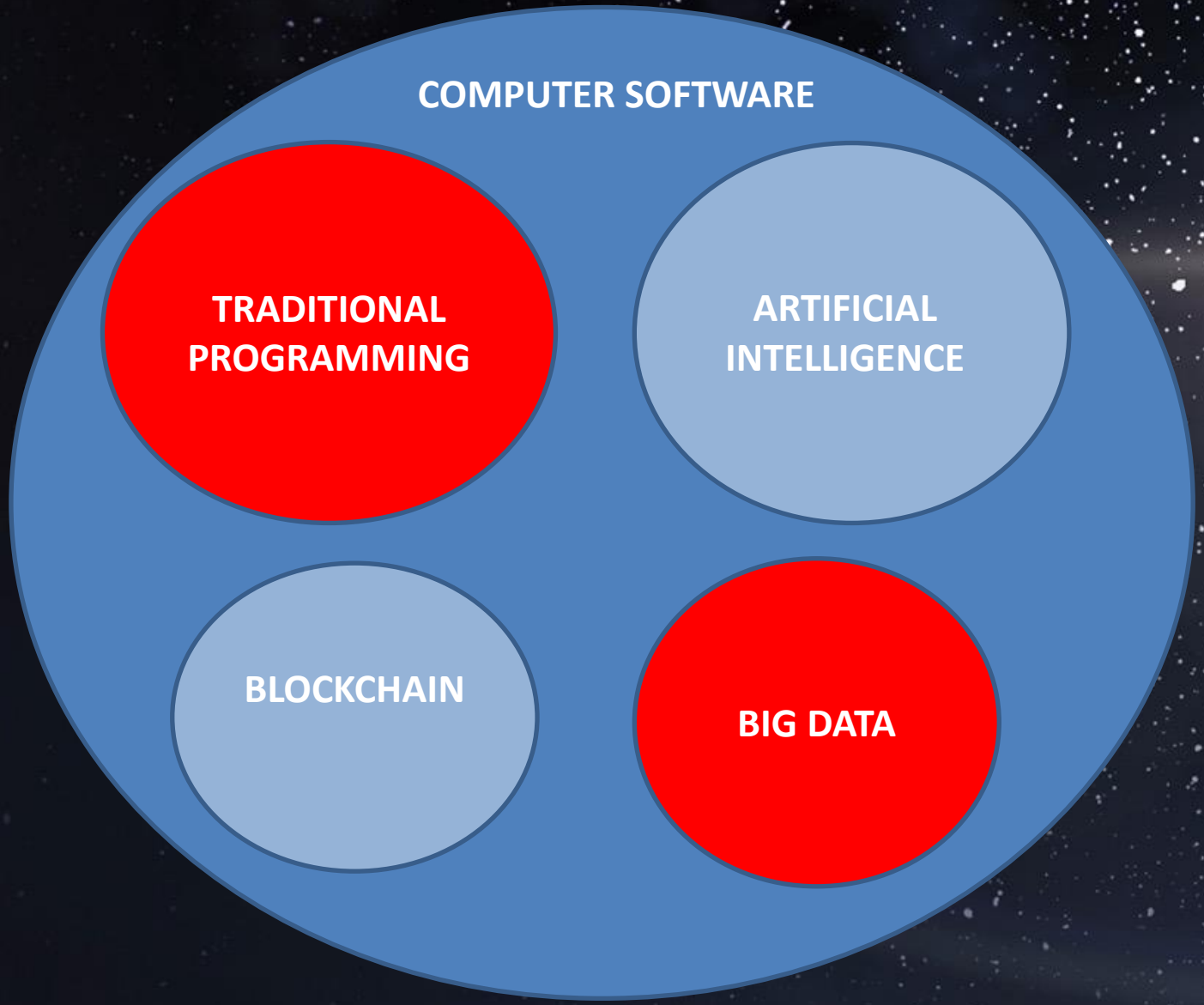
COMPUTER SOFTWARE OVERVIEW



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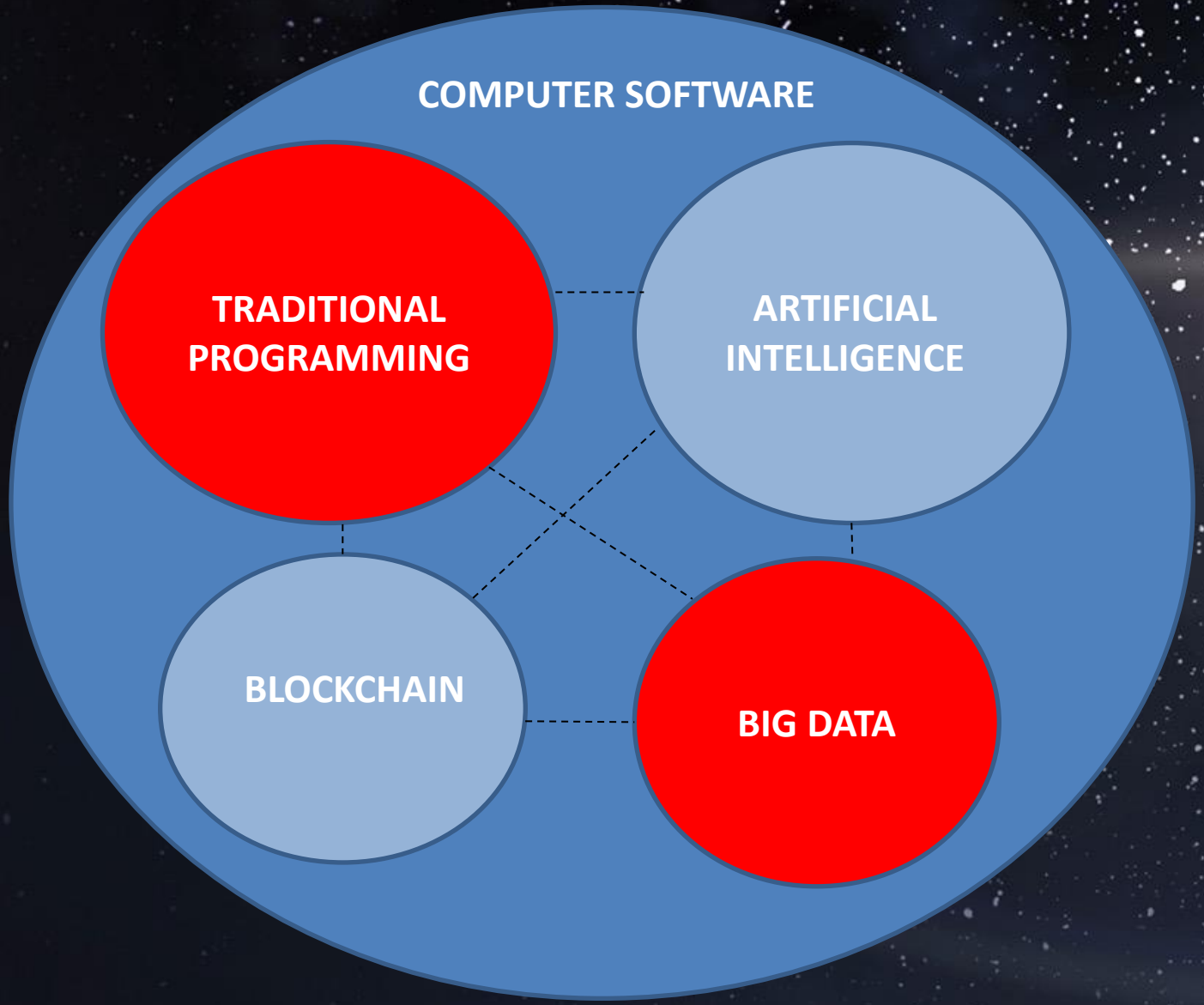
COMPUTER SOFTWARE OVERVIEW



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COMPUTER SOFTWARE OVERVIEW

TRADITIONAL PROGRAMMING (INCL. BLOCKCHAIN)

ARTIFICIAL INTELLIGENCE

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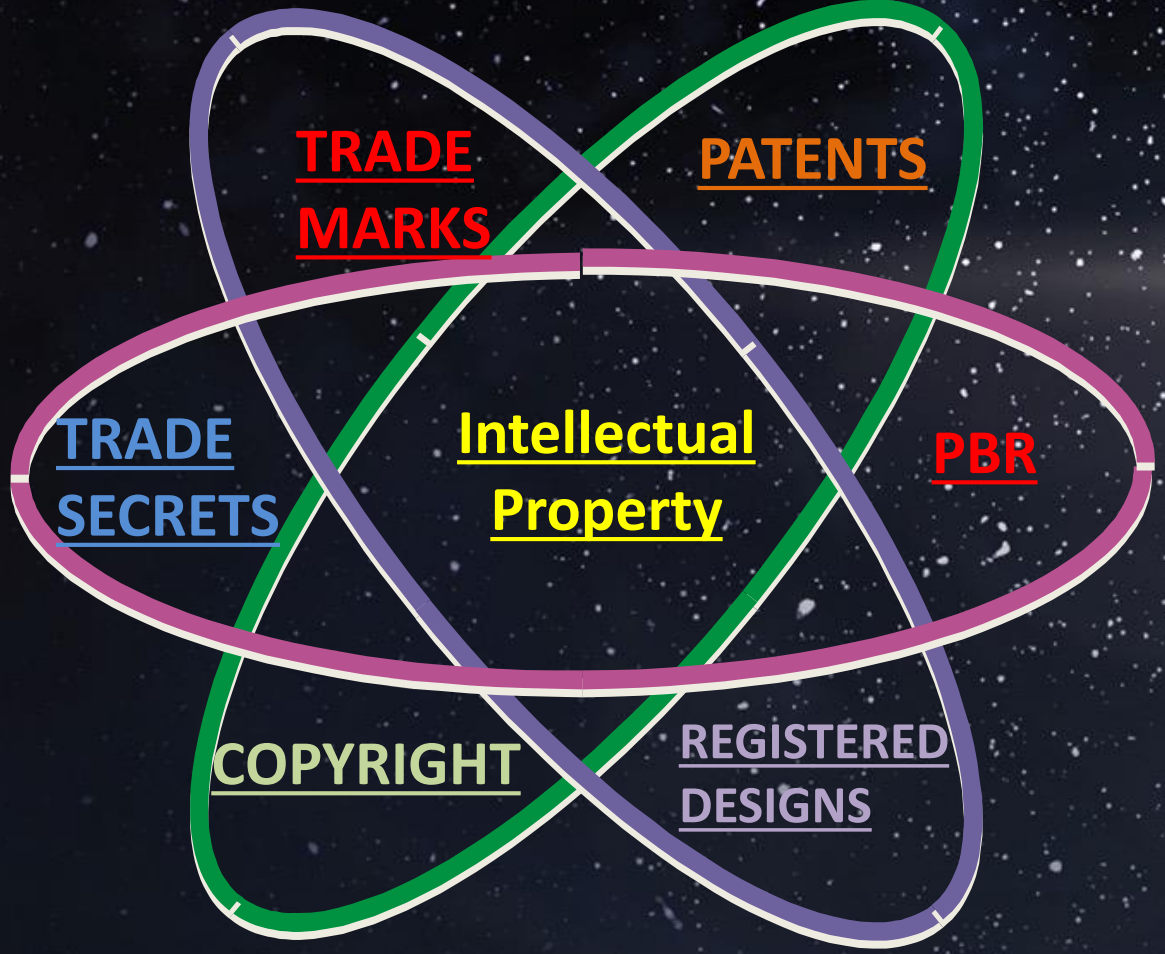
INTELLECTUAL PROPERTY OVERVIEW



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INTELLECTUAL PROPERTY (IP) & COMPUTER SOFTWARE

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INTELLECTUAL PROPERTY: PATENTS

- A legal instrument to protect an **invention**
- An **invention** is anything which is **NEW** and **INVENTIVE** over existing technologies
- Computer software is not patentable "as such" in many countries around the world

"AS SUCH"?

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PATENTABILITY OF COMPUTER SOFTWARE

Abstract Ideas are not patentable unless something more that transforms the abstract idea into patentable subject matter

Not the same but similar to the EPO position

?

Europäisches Patentamt
European Patent Office
Office européen des brevets

Requires a "technical effect"

EPO released guidelines for determining whether AI related inventions are patentable

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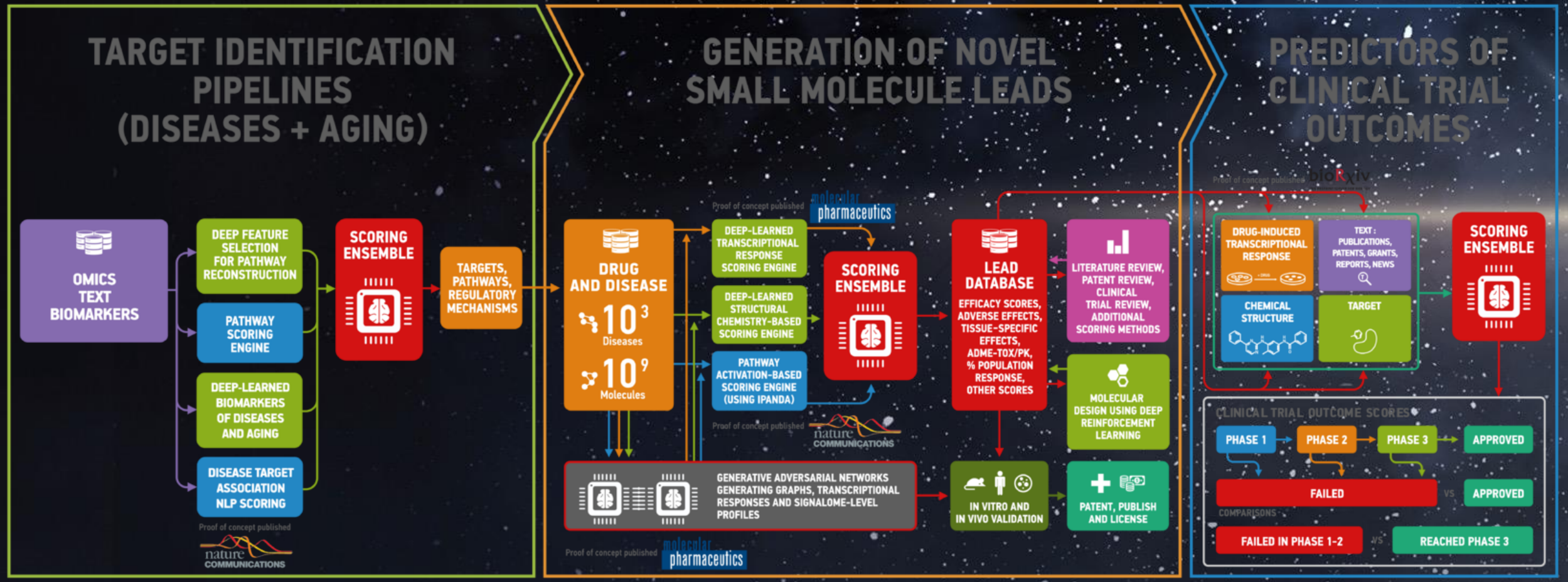
AI EXAMPLE: INSILICO MEDICINE, INC



- Drug discovery through AI

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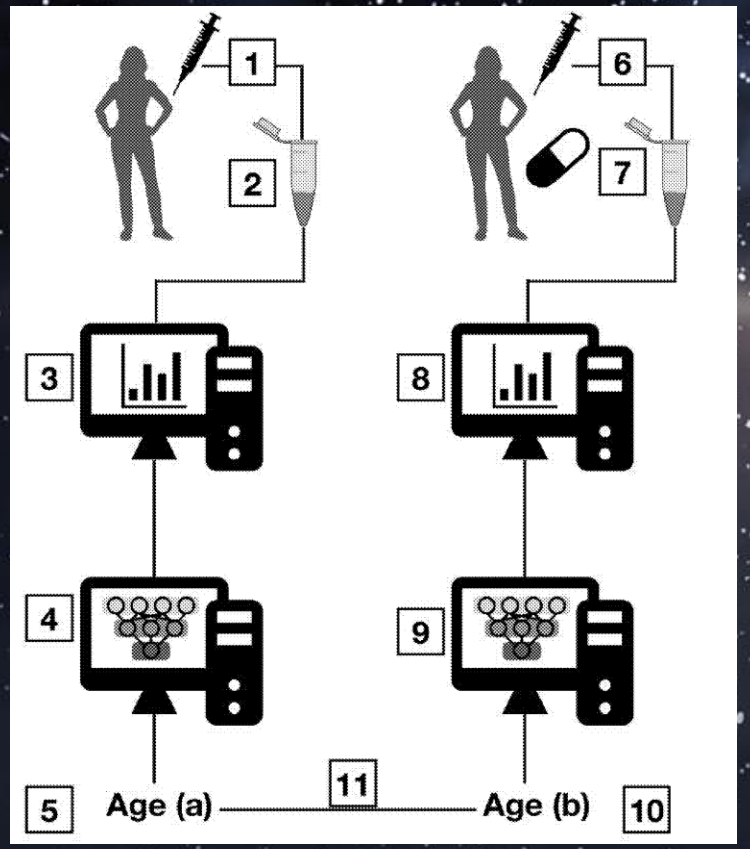
AI EXAMPLE: INSILICO MEDICINE, INC

APPLICATION OF AI

- US10,325,673, "Deep Transcriptomic Markers of Human Biological Aging and Methods of Determining a Biological Aging Clock"
- Uses a machine learning algorithm to predict biological aging of a subject based on tissue or organ samples



IN SILICO MEDICINE

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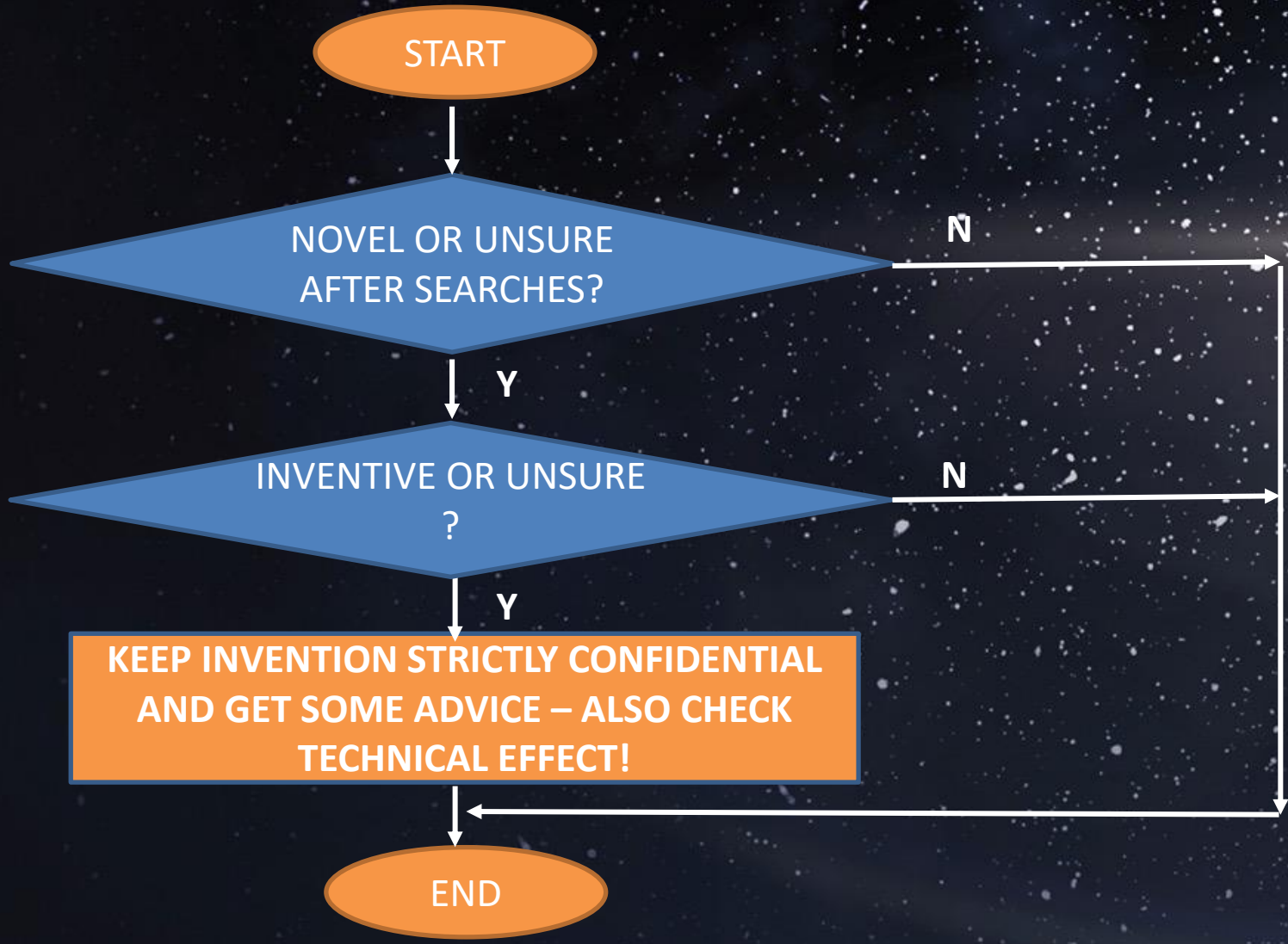
PATENTS RECAP FOR A SOFTWARE RELATED INVENTION!



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INTELLECTUAL PROPERTY (IP) & COMPUTER SOFTWARE

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INTELLECTUAL PROPERTY: REGISTERED DESIGNS

- A legal instrument to protect the appearance of an article
- What can be registered:
  - New tire tread
  - New shoe/garment/article or adornment
  - New shape of a vehicle
  - **Graphical user interfaces**
- Two types of registered designs in South Africa, functional and aesthetic
- Registered designs need to be filed **BEFORE** public disclosure but there is a **6 MONTH GRACE PERIOD** in South Africa in which to file a registered design from the date of first public disclosure

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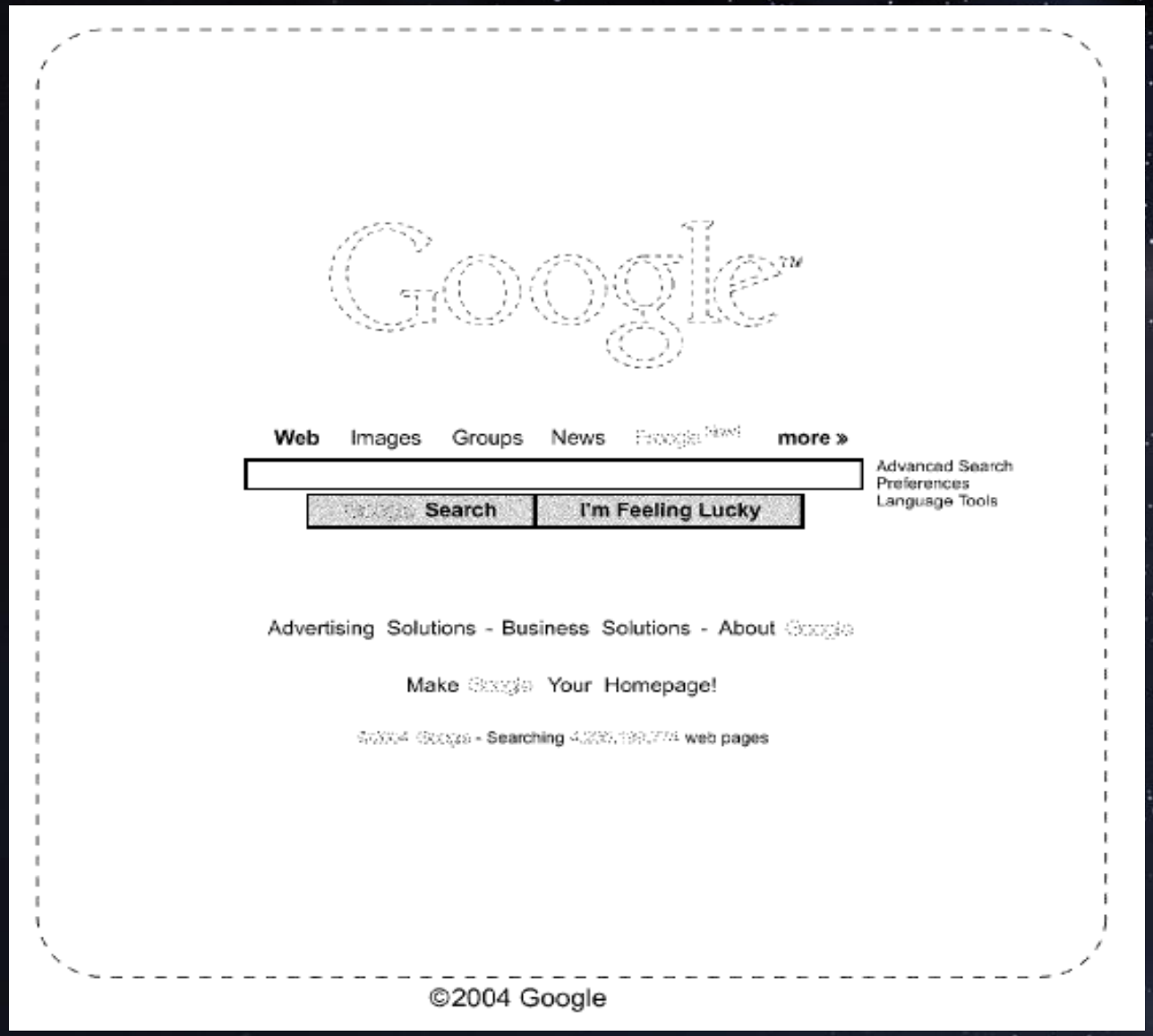
INTELLECTUAL PROPERTY: REGISTERED DESIGNS



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INTELLECTUAL PROPERTY (IP) & COMPUTER SOFTWARE

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INTELLECTUAL PROPERTY: TRADE MARKS

- A legal instrument used to protect a mark
- A mark is **any sign capable of graphical representation** and used in the course of trade in relation to goods or services for the purpose of distinguishing those goods or services from the same kinds of goods or services connected with another person
- What can be marks?
  - devices, names, signatures, words, letters, numerals, shapes, configurations, colours, containers or combinations
- Often the most valuable form of intellectual property over time
- Registration process and/or common law rights applicable

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INTELLECTUAL PROPERTY (IP) & COMPUTER SOFTWARE

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INTELLECTUAL PROPERTY: Copyright

- Automatically generated rights in respect of **original** works
- What are original works:
  - literary works
  - musical works
  - artistic works
  - cinematograph films
  - sound recordings
  - broadcasts
  - programme-carrying signals
  - published editions
  - **computer programs – source code**
- No formal registration of Copyright apart from films
- Keep accurate records and get assignments for external developers!
- Tricks in code – dummy loops!

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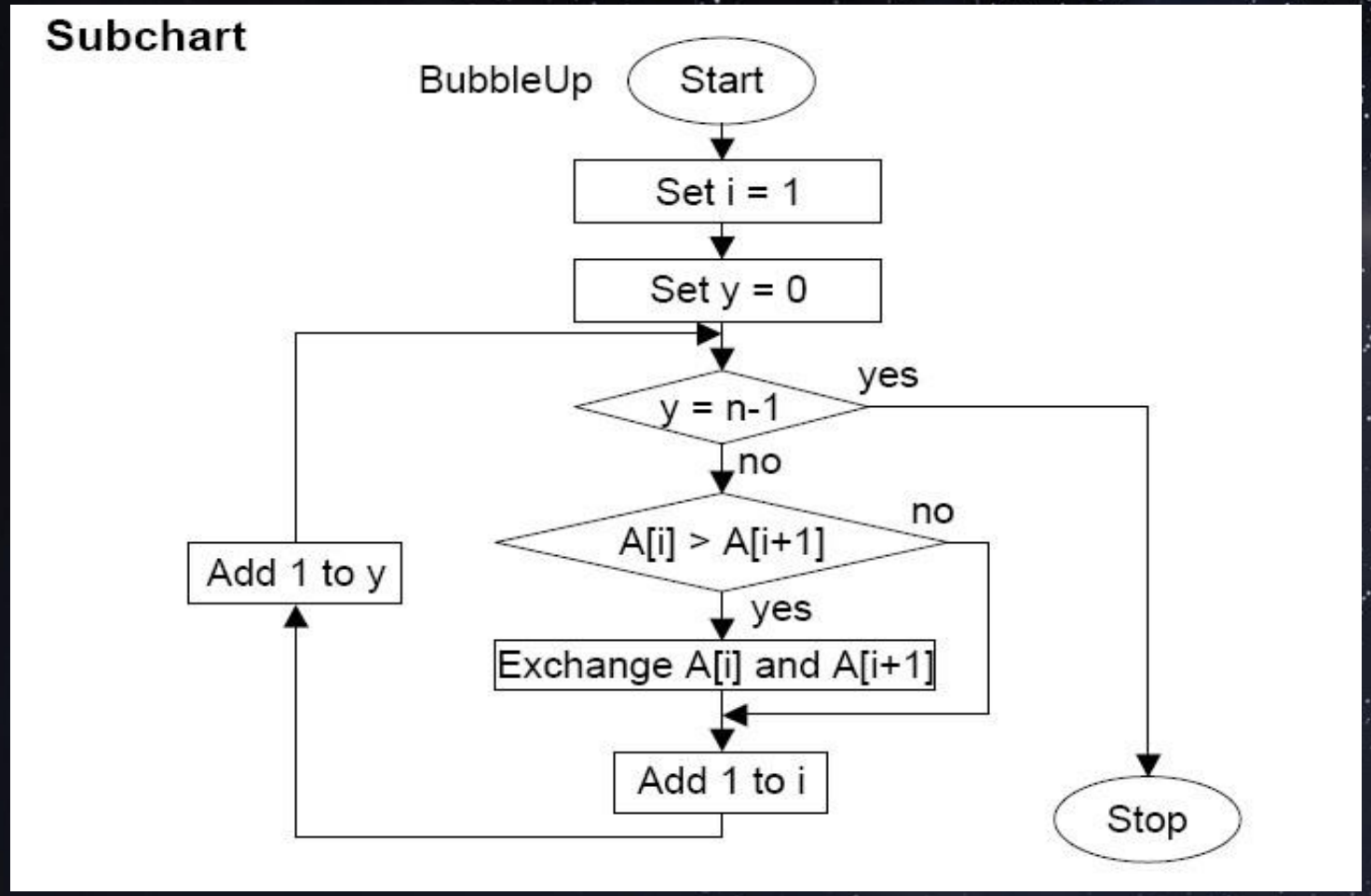
EXAMPLE OF COPYRIGHT PROTECTION: "BUBBLE SORT ALGORITHM"



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EXAMPLE OF COPYRIGHT PROTECTION: “BUBBLE SORT ALGORITHM”

- **C Code**

```
void main()
{
  int i,n,temp,j,arr[25];
  clrscr();
  printf("Enter the number of elements in the
Array: ");
  scanf("%d",&n);
  printf("\nEnter the elements:\n\n");
  for(i=0 ; i<n ; i++)
  {
    printf(" Array[%d] = ",i);
    scanf("%d",&arr[i]);
  }
  for(i=0 ; i<n ; i++)
  {
    for(j=0 ; j<n-i-1 ; j++)
    {
      if(arr[j]>arr[j+1]) //Swapping Condition is
Checked
      {
        temp=arr[j];
        arr[j]=arr[j+1];
        arr[j+1]=temp;
      }
    }
  }
printf("\nThe Sorted Array is:\n\n");
  for(i=0 ; i<n ; i++)
    {
      printf(" %4d",arr[i]);
    }
getch();
}
```

Java Code

```
class BubbleSort {
    public static void main(String []args) { int n, c, d, swap;
      Scanner in = new Scanner(System.in);
      System.out.println("Input number of integers to sort");
      n = in.nextInt();
      int array[] = new int[n];
      System.out.println("Enter " + n + " integers");
      for (c = 0; c < n; c++)
          array[c] = in.nextInt();
        for (c = 0; c < ( n - 1 ); c++) {
          for (d = 0; d < n - c - 1; d++){
            if (array[d] > array[d+1])
            {
              swap = array[d];
              array[d] = array[d+1];
              array[d+1] = swap;
            }
          }
        }
        System.out.println("Sorted list of numbers");
        for (c = 0; c < n; c++)
        System.out.println(array[c]);
    }
}
```

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INTELLECTUAL PROPERTY (IP) & COMPUTER SOFTWARE

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INTELLECTUAL PROPERTY: Trade Secrets & Know how

- Confidentiality & Non-Disclosure Agreements
- Not appropriate for technologies that are easily reverse engineered
- Benefit: Monopoly can be maintained in perpetuity

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TRADE SECRET EXAMPLE: DIFFBLUE

- Oxford University start-up which developed an AI system spots bugs in software code and fixes them for users
- Raised $22 Million with an investment from Goldman Sachs without any patents

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WHAT WE NOTICE IN PRACTICE IN RESPECT OF IP & COMPUTER SOFTWARE, PARTICULARLY AI RELATED INVENTIONS?

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WHAT DO WE NOTICE IN PRACTICE IN RESPECT OF IP & COMPUTER SOFTWARE, PARTICULARLY AI RELATED INVENTIONS?

- TRADEMARKS AND COPYRIGHT A GIVEN
- REGISTERED DESIGNS ARE OPTIONAL
- OFTEN A DEBATE ON WHETHER TO FILE PATENTS OR RELY ON TRADE SECRETS

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WHAT WE NOTICE IN PRACTICE IN RESPECT OF IP & COMPUTER SOFTWARE, PARTICULARLY AI RELATED INVENTIONS

PATENTS

Suited for software inventions which are novel and inventive (technical effect)

Pros:

- Very strong rights when granted
- Attractive to funders

Cons:

- Disclosure
- Costly
- Patentability a shifting target

TRADE SECRETS

Suited for computer software and particularly AI applications and implementations which have features which are difficult to reverse engineer

Pros:

- Can be kept a secret indefinitely
- No real costs

Cons:

- Secret gets out
- Funding
- Reverse engineering very possible

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WHAT DO WE NOTICE IN PRACTICE IN RESPECT OF IP & COMPUTER SOFTWARE, PARTICULARLY AI RELATED INVENTIONS?

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POSSIBLE STRATEGY FOR COMPUTER SOFTWARE INVENTIONS: PATENTS & TRADE SECRETS

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INTELLECTUAL PROPERTY (IP) & COMPUTER SOFTWARE

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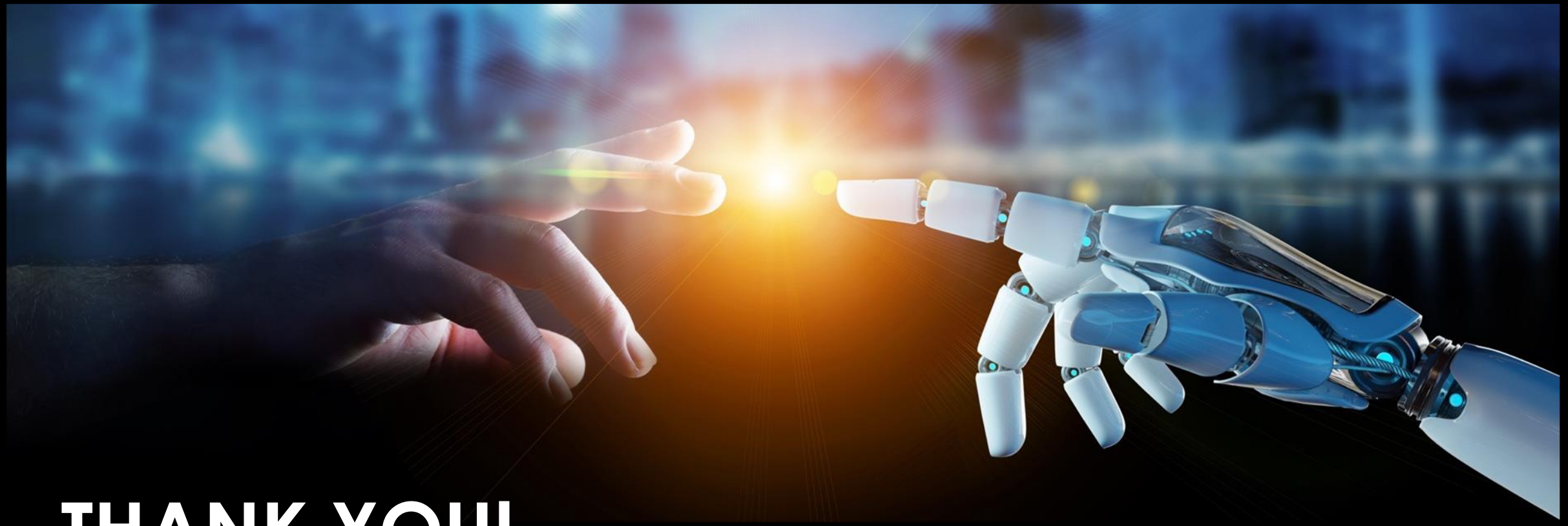

THANK YOU!

Vishen Pillay | Partner | Adams & Adams

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FAQ: IP AND COMPUTER SOFTWARE

- Who is going to own an invention created by AI?
- How can infringement of software be determined?
- What happens in the case of Blockchain systems where networked computers share computing tasks across geographies?

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