

FragScanTibo

0.1

Gegenereerd door Doxygen 1.8.18

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Hoofdstuk 1

Klasse Index

1.1 Klasse Lijst

Hieronder volgen de klassen, structs en unions met voor elk een korte beschrijving:

HMM	5
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TRAIN	10

Hoofdstuk 2

Bestand Index

2.1 Bestandslijst

Hieronder volgt de lijst met alle bestanden, elk met een korte beschrijving:

hmm.h	13
hmm_lib.c	26
run_hmm.c	30
util_lib.c	33
util_lib.h	41

Hoofdstuk 3

Klassen Documentatie

3.1 HMM Struct Referentie

```
#include <hmm.h>
```

Public Attributen

- double [pi](#) [29]
- int [N](#)
- double [tr](#) [14]
- double [e_M_1](#) [6][16][4]
- double [e_M](#) [6][16][4]
- double [tr_R_R](#) [4][4]
- double [tr_I_I](#) [4][4]
- double [tr_M_I](#) [4][4]
- double [tr_S](#) [61][64]
- double [tr_E](#) [61][64]
- double [tr_S_1](#) [61][64]
- double [tr_E_1](#) [61][64]
- double [S_dist](#) [6]
- double [E_dist](#) [6]
- double [S1_dist](#) [6]
- double [E1_dist](#) [6]

3.1.1 Documentatie van data members

3.1.1.1 E1_dist

```
double E1_dist[6]
```

3.1.1.2 E_dist

```
double E_dist[6]
```

3.1.1.3 e_M

```
double e_M[6][16][4]
```

3.1.1.4 e_M_1

```
double e_M_1[6][16][4]
```

3.1.1.5 N

```
int N
```

3.1.1.6 pi

```
double pi[29]
```

3.1.1.7 S1_dist

```
double S1_dist[6]
```

3.1.1.8 S_dist

```
double S_dist[6]
```

3.1.1.9 tr

```
double tr[14]
```

3.1.1.10 tr_E

```
double tr_E[61][64]
```

3.1.1.11 tr_E_1

```
double tr_E_1[61][64]
```

3.1.1.12 tr_I_I

```
double tr_I_I[4][4]
```

3.1.1.13 tr_M_I

```
double tr_M_I[4][4]
```

3.1.1.14 tr_R_R

```
double tr_R_R[4][4]
```

3.1.1.15 tr_S

```
double tr_S[61][64]
```

3.1.1.16 tr_S_1

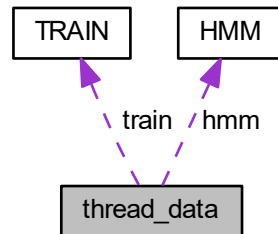
```
double tr_S_1[61][64]
```

De documentatie voor deze struct is gegenereerd op grond van het volgende bestand:

- [hmm.h](#)

3.2 thread_data Struct Referentie

Collaboratie diagram voor thread_data:



Public Attributen

- FILE * **out**
- FILE * **aa**
- FILE * **dna**
- char * **obs_head**
- char * **obs_seq**
- int **wholegenome**
- int **cg**
- int **format**
- HMM * **hmm**
- TRAIN * **train**

3.2.1 Documentatie van data members

3.2.1.1 aa

```
FILE* aa
```

3.2.1.2 cg

```
int cg
```

3.2.1.3 dna

FILE* dna

3.2.1.4 format

int format

3.2.1.5 hmm

HMM* hmm

3.2.1.6 obs_head

char* obs_head

3.2.1.7 obs_seq

char* obs_seq

3.2.1.8 out

FILE* out

3.2.1.9 train

TRAIN* train

3.2.1.10 wholegenome

```
int wholegenome
```

De documentatie voor deze struct is gegenereerd op grond van het volgende bestand:

- [run_hmm.c](#)

3.3 TRAIN Struct Referentie

```
#include <hmm.h>
```

Public Attributen

- double [trans](#) [44][6][16][4]
- double [rtrans](#) [44][6][16][4]
- double [noncoding](#) [44][4][4]
- double [start](#) [44][61][64]
- double [stop](#) [44][61][64]
- double [start1](#) [44][61][64]
- double [stop1](#) [44][61][64]
- double [S_dist](#) [44][6]
- double [E_dist](#) [44][6]
- double [S1_dist](#) [44][6]
- double [E1_dist](#) [44][6]

3.3.1 Documentatie van data members

3.3.1.1 E1_dist

```
double E1_dist[44][6]
```

3.3.1.2 E_dist

```
double E_dist[44][6]
```

3.3.1.3 noncoding

```
double noncoding[44][4][4]
```


3.3.1.4 rtrans

```
double rtrans[44][6][16][4]
```

3.3.1.5 S1_dist

```
double S1_dist[44][6]
```

3.3.1.6 S_dist

```
double S_dist[44][6]
```

3.3.1.7 start

```
double start[44][61][64]
```

3.3.1.8 start1

```
double start1[44][61][64]
```

3.3.1.9 stop

```
double stop[44][61][64]
```

3.3.1.10 stop1

```
double stop1[44][61][64]
```

3.3.1.11 trans

```
double trans[44][6][16][4]
```

De documentatie voor deze struct is gegenereerd op grond van het volgende bestand:

- [hmm.h](#)

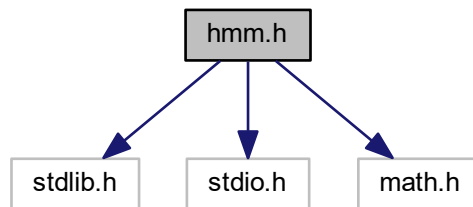
Hoofdstuk 4

Bestand Documentatie

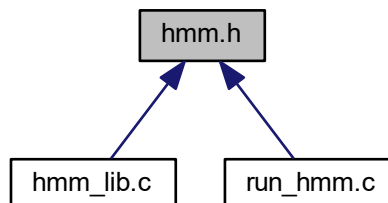
4.1 hmm.h Bestand Referentie

```
#include <stdlib.h>
#include <stdio.h>
#include <math.h>
```

Include afhankelijkheidsgraaf voor hmm.h:



Deze graaf geeft aan welke bestanden direct of indirect afhankelijk zijn van dit bestand:



Klassen

- struct [HMM](#)
- struct [TRAIN](#)

Macros

- #define [A](#) 0
- #define [C](#) 1
- #define [G](#) 2
- #define [T](#) 3
- #define [NUM_STATE](#) 29
- #define [NOSTATE](#) -1
- #define [S_STATE](#) 0
- #define [E_STATE](#) 1
- #define [R_STATE](#) 2
- #define [S_STATE_1](#) 3
- #define [E_STATE_1](#) 4
- #define [M1_STATE](#) 5
- #define [M2_STATE](#) 6
- #define [M3_STATE](#) 7
- #define [M4_STATE](#) 8
- #define [M5_STATE](#) 9
- #define [M6_STATE](#) 10
- #define [M1_STATE_1](#) 11
- #define [M2_STATE_1](#) 12
- #define [M3_STATE_1](#) 13
- #define [M4_STATE_1](#) 14
- #define [M5_STATE_1](#) 15
- #define [M6_STATE_1](#) 16
- #define [I1_STATE](#) 17
- #define [I2_STATE](#) 18
- #define [I3_STATE](#) 19
- #define [I4_STATE](#) 20
- #define [I5_STATE](#) 21
- #define [I6_STATE](#) 22
- #define [I1_STATE_1](#) 23
- #define [I2_STATE_1](#) 24
- #define [I3_STATE_1](#) 25
- #define [I4_STATE_1](#) 26
- #define [I5_STATE_1](#) 27
- #define [I6_STATE_1](#) 28
- #define [TR_MM](#) 0
- #define [TR_MI](#) 1
- #define [TR_MD](#) 2
- #define [TR_II](#) 3
- #define [TR_IM](#) 4
- #define [TR_DD](#) 5
- #define [TR_DM](#) 6
- #define [TR_GE](#) 7
- #define [TR_GG](#) 8
- #define [TR_ER](#) 9
- #define [TR_RS](#) 10
- #define [TR_RR](#) 11
- #define [TR_ES](#) 12
- #define [TR_ES1](#) 13

Functies

- int [get_prob_from_cg](#) (HMM *hmm, [TRAIN](#) *train, char *O)
- void [get_train_from_file](#) (char *filename, [HMM](#) *hmm_ptr, char *mfilename, char *mfilename1, char *nfilename, char *sfilename, char *pfilename, char *s1filename, char *p1filename, char *dfilename, [TRAIN](#) *train_ptr)
- void [viterbi](#) (HMM *hmm_ptr, [TRAIN](#) *train_ptr, char *O, FILE *out_filename, FILE *log_filename, FILE *dna_filename, char *head, int metagene, int cg, int format)
- void [free_hmm](#) (HMM *hmm)
- void [get_protein](#) (char *dna, char *protein, int strand, int whole_genome)
- void [get_rc_dna](#) (char *dna, char *dna1)
- void [get_corrected_dna](#) (char *dna, char *dna_f)

4.1.1 Documentatie van macro's

4.1.1.1 A

```
#define A 0
```

4.1.1.2 C

```
#define C 1
```

4.1.1.3 E_STATE

```
#define E_STATE 1
```

4.1.1.4 E_STATE_1

```
#define E_STATE_1 4
```

4.1.1.5 G

```
#define G 2
```

4.1.1.6 I1_STATE

```
#define I1_STATE 17
```

4.1.1.7 I1_STATE_1

```
#define I1_STATE_1 23
```

4.1.1.8 I2_STATE

```
#define I2_STATE 18
```

4.1.1.9 I2_STATE_1

```
#define I2_STATE_1 24
```

4.1.1.10 I3_STATE

```
#define I3_STATE 19
```

4.1.1.11 I3_STATE_1

```
#define I3_STATE_1 25
```

4.1.1.12 I4_STATE

```
#define I4_STATE 20
```

4.1.1.13 I4_STATE_1

```
#define I4_STATE_1 26
```

4.1.1.14 I5_STATE

```
#define I5_STATE 21
```

4.1.1.15 I5_STATE_1

```
#define I5_STATE_1 27
```

4.1.1.16 I6_STATE

```
#define I6_STATE 22
```

4.1.1.17 I6_STATE_1

```
#define I6_STATE_1 28
```

4.1.1.18 M1_STATE

```
#define M1_STATE 5
```

4.1.1.19 M1_STATE_1

```
#define M1_STATE_1 11
```

4.1.1.20 M2_STATE

```
#define M2_STATE 6
```

4.1.1.21 M2_STATE_1

```
#define M2_STATE_1 12
```

4.1.1.22 M3_STATE

```
#define M3_STATE 7
```

4.1.1.23 M3_STATE_1

```
#define M3_STATE_1 13
```

4.1.1.24 M4_STATE

```
#define M4_STATE 8
```

4.1.1.25 M4_STATE_1

```
#define M4_STATE_1 14
```

4.1.1.26 M5_STATE

```
#define M5_STATE 9
```

4.1.1.27 M5_STATE_1

```
#define M5_STATE_1 15
```

4.1.1.28 M6_STATE

```
#define M6_STATE 10
```

4.1.1.29 M6_STATE_1

```
#define M6_STATE_1 16
```


4.1.1.30 NOSTATE

```
#define NOSTATE -1
```

4.1.1.31 NUM_STATE

```
#define NUM_STATE 29
```

4.1.1.32 R_STATE

```
#define R_STATE 2
```

4.1.1.33 S_STATE

```
#define S_STATE 0
```

4.1.1.34 S_STATE_1

```
#define S_STATE_1 3
```

4.1.1.35 T

```
#define T 3
```

4.1.1.36 TR_DD

```
#define TR_DD 5
```

4.1.1.37 TR_DM

```
#define TR_DM 6
```

4.1.1.38 TR_ER

```
#define TR_ER 9
```

4.1.1.39 TR_ES

```
#define TR_ES 12
```

4.1.1.40 TR_ES1

```
#define TR_ES1 13
```

4.1.1.41 TR_GE

```
#define TR_GE 7
```

4.1.1.42 TR_GG

```
#define TR_GG 8
```

4.1.1.43 TR_II

```
#define TR_II 3
```

4.1.1.44 TR_IM

```
#define TR_IM 4
```

4.1.1.45 TR_MD

```
#define TR_MD 2
```

4.1.1.46 TR_MI

```
#define TR_MI 1
```

4.1.1.47 TR_MM

```
#define TR_MM 0
```

4.1.1.48 TR_RR

```
#define TR_RR 11
```

4.1.1.49 TR_RS

```
#define TR_RS 10
```

4.1.2 Documentatie van functies

4.1.2.1 free_hmm()

```
void free_hmm (  
    HMM * hmm )
```

Hier is de call graaf voor deze functie:



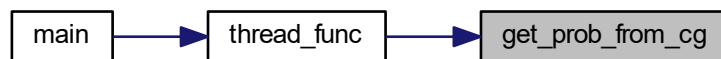
4.1.2.2 get_corrected_dna()

```
void get_corrected_dna (  
    char * dna,  
    char * dna_f )
```

4.1.2.3 get_prob_from_cg()

```
int get_prob_from_cg (  
    HMM * hmm,  
    TRAIN * train,  
    char * O )
```

Hier is de caller graaf voor deze functie:



4.1.2.4 get_protein()

```
void get_protein (  
    char * dna,  
    char * protein,  
    int strand,  
    int whole_genome )
```

Hier is de caller graaf voor deze functie:



4.1.2.5 get_rc_dna()

```
void get_rc_dna (
    char * dna,
    char * dna1 )
```

Hier is de call graaf voor deze functie:



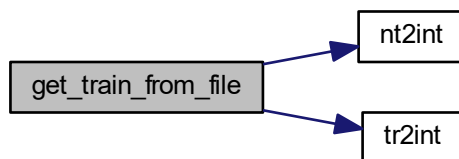
Hier is de caller graaf voor deze functie:



4.1.2.6 get_train_from_file()

```
void get_train_from_file (
    char * filename,
    HMM * hmm_ptr,
    char * mfilename,
    char * mfilename1,
    char * nfilename,
    char * sfilename,
    char * pfilename,
    char * slfilename,
    char * plfilename,
    char * dfilename,
    TRAIN * train_ptr )
```

Hier is de call graaf voor deze functie:



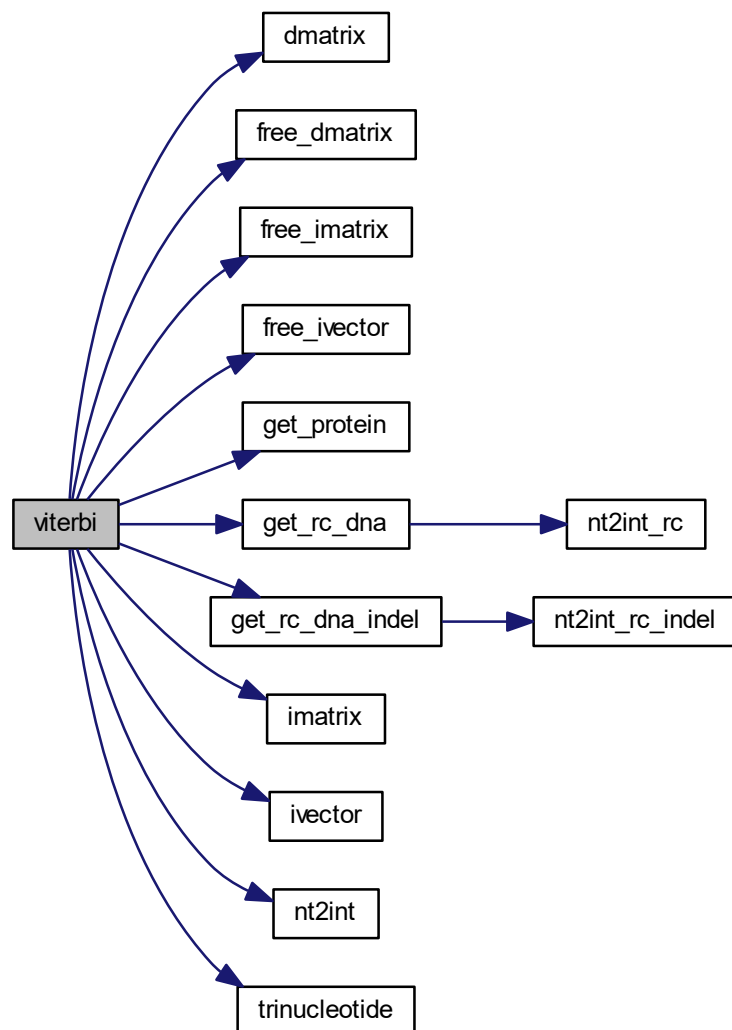
Hier is de caller graaf voor deze functie:



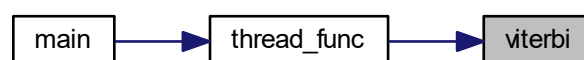
4.1.2.7 viterbi()

```
void viterbi (
    HMM * hmm_ptr,
    TRAIN * train_ptr,
    char * O,
    FILE * out_filename,
    FILE * log_filename,
    FILE * dna_filename,
    char * head,
    int metagene,
    int cg,
    int format )
```

Hier is de call graaf voor deze functie:



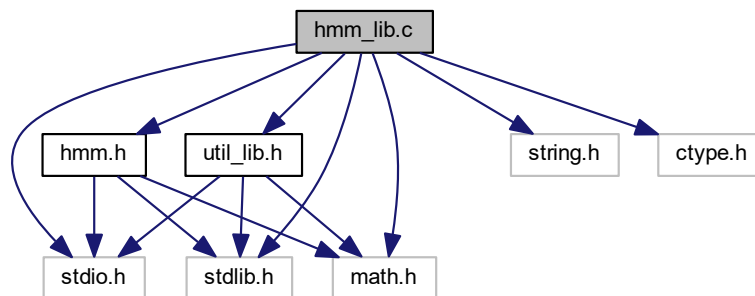
Hier is de caller graaf voor deze functie:



4.2 hmm_lib.c Bestand Referentie

```
#include <stdio.h>
#include <math.h>
#include <string.h>
#include <stdlib.h>
#include <ctype.h>
#include "hmm.h"
#include "util_lib.h"
```

Include afhankelijkheidsgraaf voor hmm_lib.c:



Functies

- void [dump_memory](#) (void *p, int size)
- void [viterbi](#) (HMM *hmm_ptr, [TRAIN](#) *train_ptr, char *O, FILE *fp_out, FILE *fp_aa, FILE *fp_dna, char *head, int whole_genome, int cg, int format)
- int [get_prob_from_cg](#) (HMM *hmm_ptr, [TRAIN](#) *train_ptr, char *O)
- void [get_train_from_file](#) (char *filename, HMM *hmm_ptr, char *mfilename, char *mfilename1, char *nfilename, char *sfilename, char *pfilename, char *s1filename, char *p1filename, char *dfilename, [TRAIN](#) *train_ptr)
- void [free_hmm](#) (HMM *hmm_ptr)

4.2.1 Documentatie van functies

4.2.1.1 dump_memory()

```
void dump_memory (
    void * p,
    int size )
```


4.2.1.2 free_hmm()

```
void free_hmm (
    HMM * hmm_ptr )
```

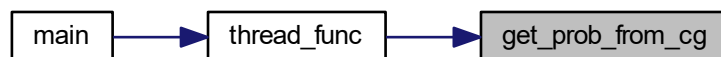
Hier is de call graaf voor deze functie:



4.2.1.3 get_prob_from_cg()

```
int get_prob_from_cg (
    HMM * hmm_ptr,
    TRAIN * train_ptr,
    char * O )
```

Hier is de caller graaf voor deze functie:

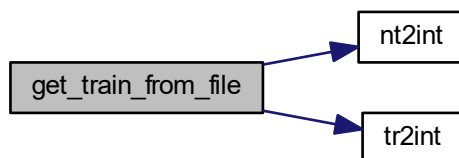


4.2.1.4 get_train_from_file()

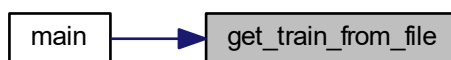
```
void get_train_from_file (
    char * filename,
    HMM * hmm_ptr,
    char * mfilename,
    char * mfilename1,
    char * nfilename,
    char * sfilename,
    char * pfilename,
    char * slfilename,
    char * plfilename,
```

```
char * dfilename,  
TRAIN * train_ptr )
```

Hier is de call graaf voor deze functie:



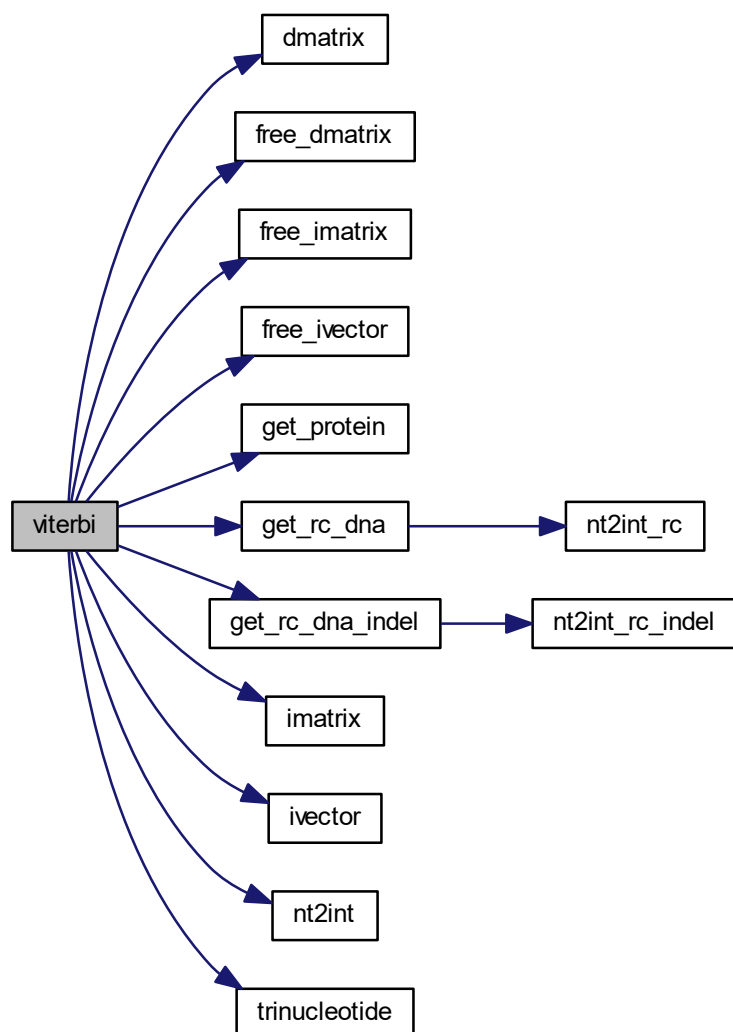
Hier is de caller graaf voor deze functie:



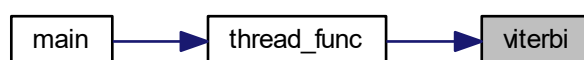
4.2.1.5 viterbi()

```
void viterbi (  
    HMM * hmm_ptr,  
    TRAIN * train_ptr,  
    char * O,  
    FILE * fp_out,  
    FILE * fp_aa,  
    FILE * fp_dna,  
    char * head,  
    int whole_genome,  
    int cg,  
    int format )
```

Hier is de call graaf voor deze functie:



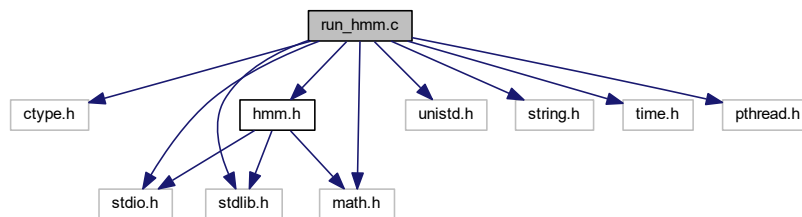
Hier is de caller graaf voor deze functie:



4.3 run_hmm.c Bestand Referentie

```
#include <ctype.h>
#include <stdio.h>
#include <stdlib.h>
#include <math.h>
#include <unistd.h>
#include <string.h>
#include <time.h>
#include "hmm.h"
#include <pthread.h>
```

Include afhankelijkheidsgraaf voor run_hmm.c:



Klassen

- struct [thread_data](#)

Macros

- #define [ADD_LEN](#) 1024
- #define [STRINGLEN](#) 4096

Typedefs

- typedef struct [thread_data](#) [thread_data](#)

Funcities

- void * [thread_func](#) (void *threadarr)
- int [main](#) (int argc, char **argv)
- int [appendSeq](#) (char *input, char **seq, int input_max)

4.3.1 Documentatie van macro's

4.3.1.1 ADD_LEN

```
#define ADD_LEN 1024
```

4.3.1.2 STRINGLEN

```
#define STRINGLEN 4096
```

4.3.2 Documentatie van typedefs

4.3.2.1 thread_data

```
typedef struct thread_data thread_data
```

4.3.3 Documentatie van functies

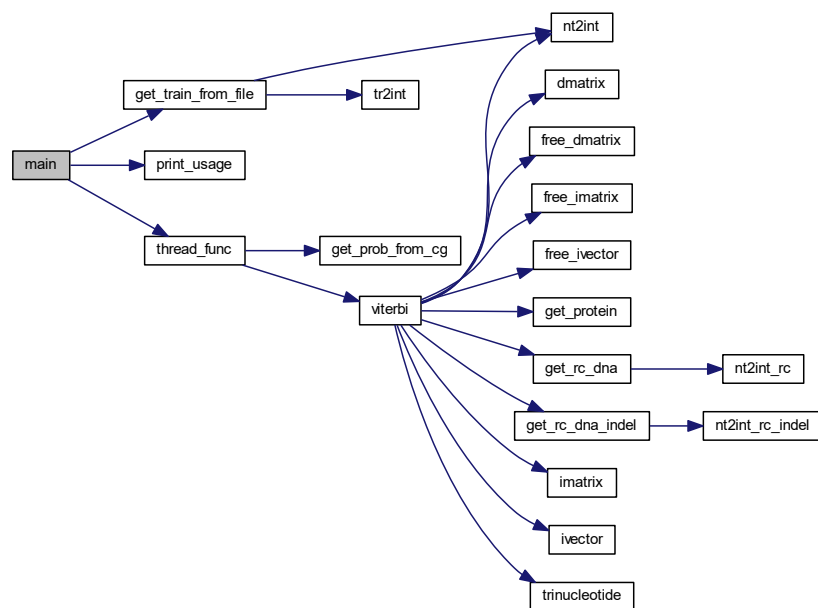
4.3.3.1 appendSeq()

```
int appendSeq (
    char * input,
    char ** seq,
    int input_max )
```

4.3.3.2 main()

```
int main (
    int argc,
    char ** argv )
```

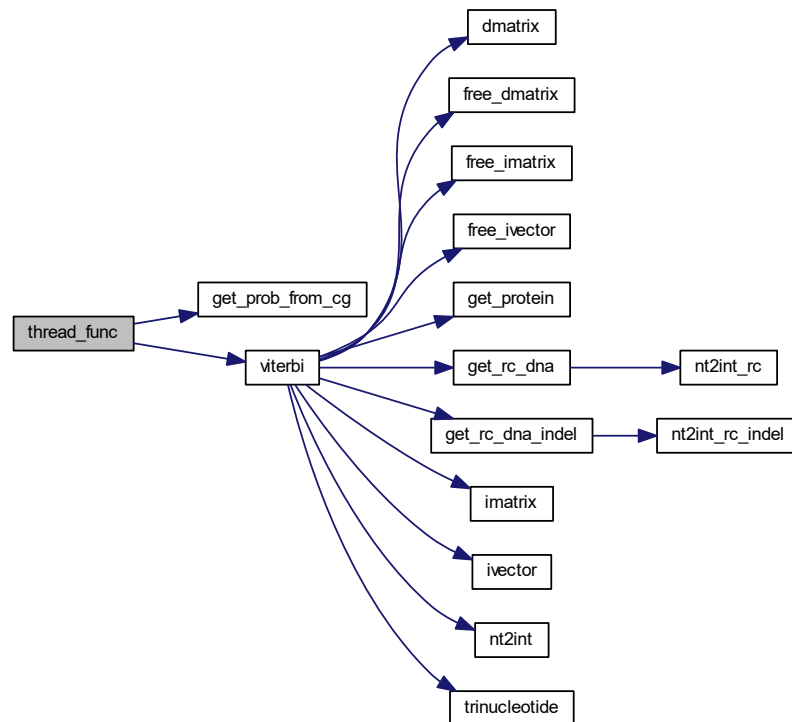
Hier is de call graaf voor deze functie:



4.3.3.3 thread_func()

```
void * thread_func (
    void * threadarr )
```

Hier is de call graaf voor deze functie:



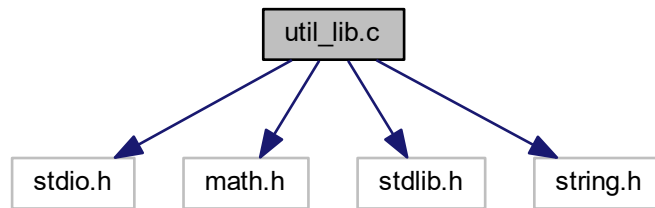
Hier is de caller graaf voor deze functie:



4.4 util_lib.c Bestand Referentie

```
#include <stdio.h>
#include <math.h>
#include <stdlib.h>
#include <string.h>
```

Include afhankelijkheidsgraaf voor util_lib.c:



Funcities

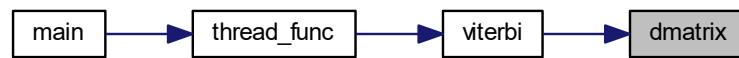
- double `log2` (double a)
- double ** `dmatrix` (int num_row, int num_col)
- int ** `imatrix` (int num_row, int num_col)
- double * `dvector` (int nh)
- int * `ivector` (int nh)
- void `free_dvector` (double *v)
- void `free_ivector` (int *v)
- void `free_dmatrix` (double **m, int num_row)
- void `free_imatrix` (int **m, int num_row)
- int `tr2int` (char *tr)
- int `nt2int` (char nt)
- int `nt2int_rc` (char nt)
- int `nt2int_rc_indel` (char nt)
- int `trinucleotide` (char a, char b, char c)
- int `trinucleotide_pep` (char a, char b, char c)
- void `get_rc_dna` (char *dna, char *dna1)
- void `get_rc_dna_indel` (char *dna, char *dna1)
- void `get_protein` (char *dna, char *protein, int strand, int whole_genome)
- void `print_usage` ()

4.4.1 Documentatie van functies

4.4.1.1 `dmatrix()`

```
double** dmatrix (  
    int num_row,  
    int num_col )
```


Hier is de caller graaf voor deze functie:



4.4.1.2 dvector()

```
double* dvector (
    int nh )
```

4.4.1.3 free_dmatrix()

```
void free_dmatrix (
    double ** m,
    int num_row )
```

Hier is de caller graaf voor deze functie:



4.4.1.4 free_dvector()

```
void free_dvector (
    double * v )
```

Hier is de caller graaf voor deze functie:



4.4.1.5 free_imatrix()

```
void free_imatrix (
    int ** m,
    int num_row )
```

Hier is de caller graaf voor deze functie:



4.4.1.6 free_ivector()

```
void free_ivector (
    int * v )
```

Hier is de caller graaf voor deze functie:



4.4.1.7 get_protein()

```
void get_protein (
    char * dna,
    char * protein,
    int strand,
    int whole_genome )
```

Hier is de call graaf voor deze functie:



Hier is de caller graaf voor deze functie:



4.4.1.8 get_rc_dna()

```
void get_rc_dna (  
    char * dna,  
    char * dna1 )
```

Hier is de call graaf voor deze functie:



Hier is de caller graaf voor deze functie:



4.4.1.9 get_rc_dna_indel()

```
void get_rc_dna_indel (  
    char * dna,  
    char * dna1 )
```

Hier is de call graaf voor deze functie:



Hier is de caller graaf voor deze functie:



4.4.1.10 imatrix()

```
int** imatrix (  
    int num_row,  
    int num_col )
```

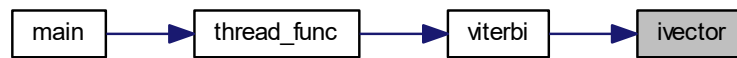
Hier is de caller graaf voor deze functie:



4.4.1.11 ivector()

```
int* ivector (  
    int nh )
```

Hier is de caller graaf voor deze functie:



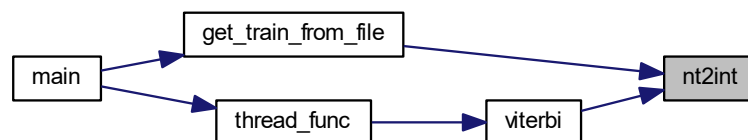
4.4.1.12 log2()

```
double log2 (  
    double a )
```

4.4.1.13 nt2int()

```
int nt2int (  
    char nt )
```

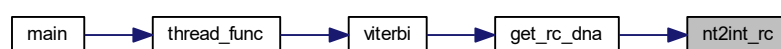
Hier is de caller graaf voor deze functie:



4.4.1.14 nt2int_rc()

```
int nt2int_rc (  
    char nt )
```

Hier is de caller graaf voor deze functie:



4.4.1.15 nt2int_rc_indel()

```
int nt2int_rc_indel (  
    char nt )
```

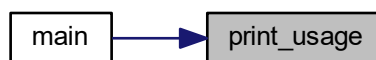
Hier is de caller graaf voor deze functie:



4.4.1.16 print_usage()

```
void print_usage ( )
```

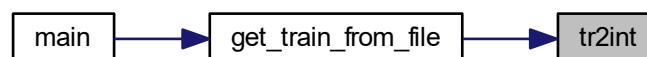
Hier is de caller graaf voor deze functie:



4.4.1.17 tr2int()

```
int tr2int (  
    char * tr )
```

Hier is de caller graaf voor deze functie:



4.4.1.18 trinucleotide()

```
int trinucleotide (  
    char a,  
    char b,  
    char c )
```

Hier is de caller graaf voor deze functie:



4.4.1.19 trinucleotide_pep()

```
int trinucleotide_pep (  
    char a,  
    char b,  
    char c )
```

Hier is de caller graaf voor deze functie:

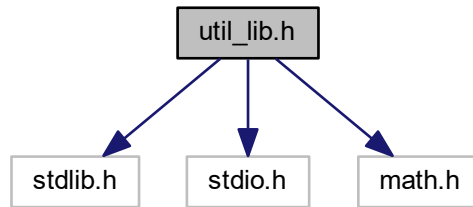


4.5 util_lib.h Bestand Referentie

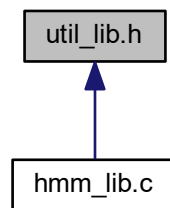
```
#include <stdlib.h>  
#include <stdio.h>
```

```
#include <math.h>
```

Include afhankelijkheidsgraaf voor util_lib.h:



Deze graaf geeft aan welke bestanden direct of indirect afhankelijk zijn van dit bestand:



Funcities

- double ** [dmatrix](#) (int num_row, int num_col)
- double * [dvector](#) (int nh)
- int ** [imatrix](#) (int num_row, int num_col)
- int * [ivector](#) (int nh)
- void [free_dvector](#) (double *v)
- void [free_dmatrix](#) (double **m, int num_row)
- void [free_ivector](#) (int *v)
- void [free_imatrix](#) (int **m, int num_row)
- int [tr2int](#) (char *nt)
- int [nt2int](#) (char nt)
- int [nt2int_rc](#) (char nt)
- int [trinucleotide](#) (char a, char b, char c)
- double [log2](#) (double a)
- void [get_protein](#) (char *dna, char *protein, int strand, int whole_genome)
- void [print_usage](#) ()

4.5.1 Documentatie van functies

4.5.1.1 dmatrix()

```
double** dmatrix (  
    int num_row,  
    int num_col )
```

Hier is de caller graaf voor deze functie:



4.5.1.2 dvector()

```
double* dvector (  
    int nh )
```

4.5.1.3 free_dmatrix()

```
void free_dmatrix (  
    double ** m,  
    int num_row )
```

Hier is de caller graaf voor deze functie:



4.5.1.4 free_dvector()

```
void free_dvector (  
    double * v )
```

Hier is de caller graaf voor deze functie:



4.5.1.5 free_imatrix()

```
void free_imatrix (  
    int ** m,  
    int num_row )
```

Hier is de caller graaf voor deze functie:



4.5.1.6 free_ivector()

```
void free_ivector (  
    int * v )
```

Hier is de caller graaf voor deze functie:



4.5.1.7 get_protein()

```
void get_protein (
    char * dna,
    char * protein,
    int strand,
    int whole_genome )
```

Hier is de call graaf voor deze functie:



4.5.1.8 imatrix()

```
int** imatrix (
    int num_row,
    int num_col )
```

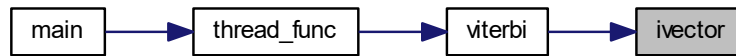
Hier is de caller graaf voor deze functie:



4.5.1.9 ivector()

```
int* ivector (
    int nh )
```

Hier is de caller graaf voor deze functie:



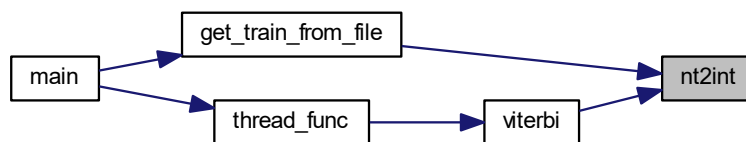
4.5.1.10 log2()

```
double log2 (  
    double a )
```

4.5.1.11 nt2int()

```
int nt2int (  
    char nt )
```

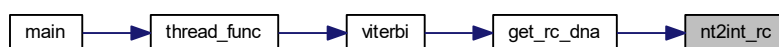
Hier is de caller graaf voor deze functie:



4.5.1.12 nt2int_rc()

```
int nt2int_rc (  
    char nt )
```

Hier is de caller graaf voor deze functie:



4.5.1.13 print_usage()

```
void print_usage ( )
```

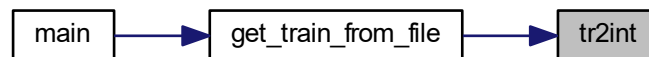
Hier is de caller graaf voor deze functie:



4.5.1.14 tr2int()

```
int tr2int (
    char * nt )
```

Hier is de caller graaf voor deze functie:



4.5.1.15 trinucleotide()

```
int trinucleotide (
    char a,
    char b,
    char c )
```

Hier is de caller graaf voor deze functie:



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